

From Birdsong to Babel: the canine connection in the origin of human language

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ABSTRACT

Whistled languages are still found today in many parts of the world, the most celebrated being Silbo, in the Canary Islands. According to Australian Aboriginal legends, it was the birds who taught human beings how to speak. Similar traditions are found in Ancient Greece and Rome and modern Europe. This article explores the hypothesis that around 100 000 years BP there was an interaction of whistling sounds among birds, humans and dogs that eventually led to the development of the first natural languages, from birdsong to whistling to articulate speech.

KEY WORDS

Evolution of natural languages, birdsong, whistling, dogs.

RESUMEN

Hay lenguajes basados en silbidos en muchas partes del mundo, siendo el más conocido el Silbo de las Islas Canarias. Según las leyendas aborígenes de Australia, los pájaros enseñaron a los seres humanos a hablar; hay tradiciones similares en la antigua Grecia y Roma, y en la Europa moderna. Este artículo explora la hipótesis de que hace alrededor de hace 100 000 años hubo entre aves, humanos y perros una interacción de silbidos que finalmente condujo al desarrollo de las primeras lenguas naturales, pasándose del canto de las aves al habla articulada.

PALABRAS CLAVE

Evolución de lenguas naturales, canto de aves, silbido, perros.

Back in the mid-1940s a stray Eastern Rosella (*Platycercus eximius*) turned up at our family home in Maitland, New South Wales (Australia). It was obviously someone's pet and my parents decided to keep it in a cage until they found the owners. The bird was there for a week during which it learnt to imitate our whistle for the family dog, Max, a large and amiable fox terrier. I happened to be in the back yard one day when the bird did its trick again: Max suddenly appeared, looking very puzzled, and the Rosella was almost laughing. Some birds do seem to have a sense of humour.

I have never forgotten that pleasant episode and my wish to see the Rosella stay forever – we were not allowed to keep birds. About sixty years later I suddenly realized that the back yard episode might have profound philosophical implications. How long has Man been whistling? How long have birds been imitating the human whistle – and *vice versa*? And when did Man start whistling his dogs?

Until recently, Science would have given a rough answer to the last question: about 12 -17 000 years ago; but in 1997 Professor Robert K. Wayne and his associates at the University of California announced the dramatic discovery that DNA analysis puts canine domestication back to 100-135 000 years BP (Vilà et al. 1997). So we might finally have an answer to the intriguing question raised by Charles Darwin in his last book, *The Expression of the Emotions in Man and Animals* (1872): how long have Man and Dog been smiling, frowning, etc. at each other?

If, as Darwin supposed, Man and Dog have been interacting long enough to evolve mutually intelligible expressions of emotion, then the same must apply to the art of whistling by which Man still communicates with dogs – and birds too, both domesticated and wild. Here in Balmain we awake to a regular sequence of morning bird calls, the most beautiful being that of the Spotted Pardalote (*Pardalotus punctatus*) who (until a few years ago) sang a brief but very resonant song, usually beginning with a fairly accurate major triad:



FIG. 1. Two versions of the Spotted Pardalote's song, notated by Gretta Sculthorp. The phrase was not repeated immediately; the second bar was often decorated with trills and turns and sometimes extended with a free cadenza.

My partner used to sing or whistle back to the Pardalote who immediately showed his appreciation by responding and sometimes adding a little cadenza or coda – just like the proud castrati who used to compete in singing and embellishing the duets of Handel's operas. One day she starting banging out the Pardalote's tune on the piano – and the bird immediately joined in. I then tried it on my recorder, but there was no response.

Some History

During the eighteenth century fabulous sums were paid for singing birds who had been patiently taught to warble entire arias by Handel and other fashionable composers, with all the trills and roulades of the virtuosi at the opera. The birds were trained by listening, day after day, in covered cages to the teacher playing the melodies on the recorder, the name of which means 'to sing like a bird'. Some of these melodies, which are preserved in a rare booklet, *The Bird-fancier's Delight* (Anon, 1714), can be heard on You Tube (www.youtube.com).

So Man - or, more often, Woman - can sing like a bird; and Bird can sing - and sometimes talk - like Man. Bird, furthermore, can sometimes do more than just parrot the sound of Man's language: Australian behavioral scientist Theodore Xenophon Barber has described the communicative powers of various birds including a talking starling who spoke intelligible English when it was 'only a few months old and was far ahead of a human child of the same age in using words meaningfully' (Barber, 1995). In such sympathetic recognition of avian intelligence Barber was anticipated by Len Howard who made a long study of 'Birds as Individuals'. One of these was 'Twist', a Great Tit (*Parus major*) who 'always appeared to understand some things that I said to her... One day when I was caressing Twist... I said "give me a kiss." To my astonishment she quickly touched my nose with her beak – a bird's kiss. I thought her response was

chance, but next day she again responded to these words in the same way, and she continued to do so for the rest of her life' (Howard, 1952; compare Dixon, 1917). St Francis of Assisi's preaching to the birds might not have been so crazy after all.

Specialists are still arguing about whether the oldest known musical instrument is a Neanderthal bone flute found in Northern Slovenia in 1995: estimates of its age range from about 40 000 to possibly 80 000 years (the sedimentary layer where it was found has been dated by electronic spin resonance to 55 000 BP). With something like a diatonic tuning, the flute might have been made to imitate a bird call; but the imitation of birdsong by whistling must have been practised long before this comparatively recent era - longer, perhaps, than our particular species has been around. The mutual admiration of avian and human songsters probably developed with some of our remote hominid ancestors; and it seems to have been a fairly exclusive exchange. As Konrad Lorenz put it, birds are 'our only colleagues in the art of music and imitation' (Lorenz, 1977).

But we mustn't forget the faithful Dog, who probably joined the musical circle about 100 000 years ago – give or take a few dozen millennia. Dog has been associated with Man for so long that he responds naturally to whistling. And Dog's musical and other expressive abilities should not be underestimated. During high arousal the New Guinea Singing Dog (*Canis lupus familiaris hallstromi*) emits 'a trill, with a distinctly "bird-like" character' and similar circumstances evoke the female's 'copulatory scream' which 'has a strong arousal effect on most domestic dogs' (Koler-Matznick et al., 2007). There are several videos of singing dogs currently posted on You Tube including some of Mishka, a female Husky who utters intelligible sentences in English and sings along with the recorded music – karaoke-style, surprisingly well in tune.

Australian evidence

Human beings respond naturally to birdsong, sometimes imitating it from a very early age. After listening to a radio talk I gave on birdsong, a doctor from Mount Victoria NSW wrote telling how puzzled she had been by some of the first articulate sounds made by her child – until she realized that the baby was imitating the call of a bird in the back yard. In her original letter to me (13-June-1994) Dr K. R. Makinson identified the bird as a currawong (*Strepera graculina*) but in later correspondence (24-June-1999) she suggested that it might have been a magpie (*Gymnorhina tibicen*) – a bird of roughly similar size and colour but with more white feathers and a much greater range of vocalizations. My own daughter, at the age of five or six years, could convincingly imitate the harsh call of the Australian Raven (*Corvus coronoides*) which has been described as ‘a powerful but baby-like dying wail’. Some Australian Aboriginals are geniuses at imitating the song and dance of the birds: I well remember the stunning performance of a didgeridoo player with the Mornington Island Dance Group who suddenly imposed over the relentless drone a series of perfectly realistic bird calls - with a delicacy of taste and judgement that reminded me of another great musical mimic, François Couperin.

In the serene ambience of pre-colonial Australia, the people lived for untold thousands of years in close harmony with Nature; and so, we can reasonably conclude, the songs of the Australian birds were heard for some months by babies in the womb, who thus were naturally born with an innate taste for the world’s oldest melody. Similarly, the best classical music was played to pregnant ladies of the old Chinese courts, so that the babies would acquire, as part of their pre-natal education, the best musical taste. During the corroborees, no doubt, the unborn Aboriginals often heard the drone of the didgeridoo, the beating sticks, stamping feet, voices singing and dogs barking.

Greece, Rome and post Renaissance Europe

In a remarkable work of comparative mythology, *The Seven Sisters of the Pleiades*, Munya Andrews makes a passing reference to ‘Dreamtime Aboriginal legends [which] tell of a time in the distant past when birds once taught human beings how to speak’ (Andrews, 1974). This same theory was current in Ancient Greece and Rome and modern Europe, the oldest surviving testimony being the very Darwinian poem *De Rerum Natura* by the Roman Lucretius (1st century BC). He was singing the doctrines of the atomist school established by the Greek philosopher Democritus (6th century BC):

And with their liquid lays the birds began

To teach the ear of imitative man;
Long ere with polished notes he cheered the plains,
Or poured his extacies in measured strains
(Busby, 1813, V 1758-60).

Such far-flung unanimity cannot have been accidental. Like so many teachings, for which Greece was given the credit by ethnocentric classicists, this was not an original theory but, more likely, an ancient legend – a folk memory or tradition inherited from the older civilizations. The belief that ‘the birds taught us to sing’ might even go back as far as the prehistoric shamans who, it is said, could understand the language of the birds and imitate their powers of flight. Pythagoras was credited with similar powers.

The origin of human music and language in birdsong was almost an article of faith in the eighteenth century, though there were sceptics like Rousseau who believed that music arose out of emotionally heightened speech. The debate raged on into the nineteenth century until finally the French Academy of Sciences banned any further discussion of the subject. The last great English thinkers involved were Darwin, who was inclined to agree with Lucretius, except that he added sex as a motive for birdsong, and Spencer who more or less agreed with Rousseau.

More recent work

Thereafter the subject went out of fashion in most academic circles. The avian origin of language is not specifically mentioned in the list of five traditional theories handed out to students of English and Linguistics. I clearly remember the perfunctory exposition of these theories in English I at Sydney University in 1954; but I was very surprised to discover that these same five theories are still the only ones mentioned in the article on ‘The Origins of Language’ in the second edition of the *Cambridge Encyclopedia of Language* (Crystal, 1997). The nearest we get to Lucretius is the ‘bow-wow’ theory that ‘speech arose through people imitating the sounds of the environment, especially animal calls’. No mention of music and birdsong here, but Dog at least gets a look in.

Before it went to press, the *Cambridge Encyclopedia* was already out of date: by then a new voyage of exploration into the origins of music and language was well under way. In 1991 the Swedish musicologist Nils L. Wallin published a weighty tome on *Biomusicology; Neurophysiological, Neuropsychological and Evolutionary Perspectives on the Origins and Purposes of Music*. This book has some interesting ideas – for example, on the ‘late paleolithic, perhaps Cro-Magnon’ origin of yodelling in Jämtland – but the heavy Swedish accent of the writing probably explains why it gets only 73 hits on Google Scholar (21-May-2012). Much more interesting is

The Origins of Music, the proceedings of a conference held at Fiesole in 1997 (Wallin, Merker & Brown, 2000). This is a high-powered, multi-disciplinary assault on the problem which leaves no doubt as to the renewed academic interest in speculative linguistics and the prehistory of human song and speech.

Among dozens of references to birds and their songs (none to dogs), we find the British ornithologist Peter Slater cautiously raising the old question, 'Might our understanding of birdsong help to shed light on the origins of human music?' Unlike Lucretius and many other admirers of bird song, Slater is not sure it can be called 'music'; but he does make the very important point that singing is not part of our evolutionary inheritance, because our nearest ancestors, the great apes, are not great singers: '...elaborate singing behaviour arose quite separately in different animal groups, and in our case this was in the relatively recent past...' (Crystal, 1997). At Cambridge during 1997 I attended a delightful concert, organised by Slater himself, of human music inspired by birdsong.

Slater's puzzling reservations about the musicality of birds were not shared by the distinguished American ornithologist and logician, Charles Hartshorne, whose classic work *Born to Sing: an Interpretation and World Survey of Bird Song* argues that the passerine birds (perching songsters) share our aesthetic delight in beautiful melody and includes a Michelin-style rating of the best avian singers worldwide (Hartshorne, 1973). In this pioneering survey he tried hard to be fair but his native American taste probably explains why he placed the Mocking Bird (*Mimus polyglottos*) slightly above that incomparable Australian virtuoso, the superb Lyrebird (*Menura novaehollandiae*). Some excellent demonstrations of the latter's powers are available on YouTube.

After nearly 500 pages of rich and fascinating argument, *The Origins of Music* ends with a somewhat downbeat editorial postlude which, like a classic *da capo* aria or Wagnerian Ring Cycle, 'ends just as it began': that is, by asking the very same questions about 'where our music comes from'. Despite the talented participants and all their bright ideas, this historic gathering failed to solve the problem: they overlooked the canine connection.

Even the warmest admirers of birdsong and its human mimics have always had trouble explaining exactly how human language managed to evolve from those delightful avian warblings. Darwin certainly couldn't – but he didn't know much about music anyway. In searching for our evolutionary predecessors in the musical art, he refers to the Gibbon (*Hylobates agilis*), an extraordinary animal who sings a chromatic scale (Darwin, 1872). But this wonderful ape musician is an isolated exception, by no means part of

some continuous evolutionary progress that Darwin needed to account for the rise of human music and languages. So, if music is not part of our evolutionary development, how did we acquire the art? There is no doubt that Man has long had the ability to imitate birdsong but nearly all his primate ancestors apparently lacked this ability. So the old problem remains: how and when did Man start imitating birdsong and how did he adapt this skill to make articulate speech?

The Canine Connection

This is where Dog comes in. By about 100 000 BP (or possibly much earlier) his ancestor, Wolf, was associating with our ancestors, the older robust specimens of *Homo sapiens sapiens* who were very like us except that they almost certainly lacked a spoken language. The association, at first, was probably gastronomic – or one of 'commensality', as the jargon has it. Then, as now, dogs came to share the human diet and soon became involved in hunting for food, protecting the campsite and developing a close familial relationship with Man. Man soon discovered that friendly dogs are very willing workers and that he could call the dogs and direct their work in the hunt by *whistling!*

So, around 100 000 BP or so, there must have occurred something very like that memorable scene at Maitland during the 1940s. Man whistles Dog and Dog usually obeys, while Bird occasionally joins in - just for fun. But the whistle remains a crucial medium of communication between Man and Dog who, from that time onwards, evolves together in a close commensal relationship which produces other forms of intimate exchange such as the smile, the frown and the threatening look of aggression (eyes staring, ears laid back, upper lip retracted, canine teeth bared) that Darwin studied so brilliantly. I'll never forget the sight of my late friend, the anthropologist Lester Hiatt, sitting in front of a large gilded mirror in our Mayfair apartment (London, back in 1964), reading Darwin and practising the various facial expressions shared by Dog and Man.

But how did Man learn to whistle? Obviously, as Lucretius and his followers have long insisted, by copying the songs of those other rational bipeds, the birds, who were probably also then commensal with Man to some extent, as they are today. As Konrad Lorenz realized, there were no other possible models to imitate – except the second greatest musician on Earth, the Humpback Whale (*Megaptera novaeangliae*), who was too far away. Since whistling and singing were definitely not part of a long-term evolutionary development from Ape to Man, the only other way the latter could have acquired these skills was by a relatively quick *technological transfer*. The human technique of whistling is probably the older skill and, to acquire it, Man had to

replicate the noises made by Bird with his *syrinx* by using a quite different mechanism, the *larynx*. How long he took to do this is anybody's guess.

Living so closely with the birds, prehistoric Man must have noticed how effectively they communicate and cooperate, because he eventually mastered very similar social skills and finally surpassed most of the birds at their own game (except for self-powered flight). Later on Man invented musical instruments like the whistle, flute and pan-pipes to improve his imitations of birdsong and make even better melodies. So we seem to have here a plausible, and quite unoriginal, theory for the origin of music. But what about spoken language?

It is generally supposed that articulate speech developed some time during the last 100 000 years, or so. The genetic history of the dog now goes back to this era, thus providing the first reasonably approximate date in the rise of language; but, once we have Man and Dog in full-time commensality and communication, things start to move quickly. During the hunt involving groups of men and dogs, the system of whistling naturally comes to include signals between the men, as well as between the men and their dogs; and so, in no time, Man acquires his own complete *whistled language* – some time between c.100 000 BP and, say, 50 000 BP. That is just a guess.

Whistled languages are still found today in many parts of the world, the most celebrated being Silbo, an almost extinct language of La Gomera in the Canary Islands. With only four vowels and four consonants it can articulate more than 4 000 words. Before the mobile phone came in, the whistled language was particularly useful for shepherds communicating across a mountainous terrain at distances of up to five kilometres. Silbo is now being taught in schools and has been the subject of international conferences on whistled languages held at La Gomera.

The copious references available on the Net include the obvious speculation that whistled language 'has a remote, possibly pre-historic origin' as well as the charming anecdote from La Gomera that some of the peasants' whistling has been picked up by the local birds! The full circle. In a fascinating article linguist John F. Carrington reported his whistled exchange with a bird in the bush:

he inoli olúwí lokonda-lo – hey white man, so you know this forest?

he inoli ilúwí lokonda-lo – yes little bird, I know this forest (Carrington, 1971).

Given the widespread existence of whistled languages – still, admittedly, of uncertain antiquity – the theories so quickly disposed of in English I start to look more interesting.

The lecturer, whose name I forget, seemed to think that these five theories were all mutually exclusive but, as far as I can see now, the proposed mechanisms might have all been working together – through possibly half the life-span of our species – to produce the unprecedented and still unexplained phenomenon of human speech.

No. 1, the 'bow-wow' theory of the old Australian and Greek legends has 'little support', according to the *Cambridge Encyclopedia*: I think it's the most plausible of them all, especially when you add the 'tweet-tweet' of the birds. No. 2, the 'pooh-pooh' theory proposes that language arose from 'instinctive sounds caused by pain, anger or other emotions': this leaves me wondering how long Man had made any such sounds before they became 'instinctive'. While listening to the birds, proto-linguistic Man must have often uttered his own distant equivalents to 'whew', 'yippee', 'wow'. With the art of whistling by now well advanced, he might have already developed something like the currawong call with which Australian men whistle their appreciation of the passing opposite sex. And so on with the other three theories: 'ding-dong' (language began as an onomatopoeic imitation of natural sounds); 'yo-ho' (from noises made in cooperative work); and 'la-la' (basically, Darwin's theory that language arose from 'the romantic side of life, sounds associated with love, play, poetic feeling, perhaps even song').

The *Cambridge Encyclopedia* rightly concludes that no single element of such diverse and complicated linguistic behaviour could alone wholly explain the emergence of spoken language; but, since there are plausible traces of all these behaviours in extant human languages, such mechanisms could have been accidentally operating together for tens of thousands of years in the dramatic rise of the first natural languages, from birdsong to whistling to articulate speech. And it all happened a long time before the Tower of Babel.

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