GROOMING, GOSSIP, AND THE

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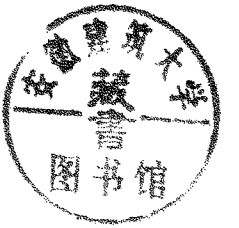

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Contents

CHAPTER 1

Talking Heads

To be groomed by a monkey is to experience primordial emotions: the initial frisson of uncertainty in an untested relationship, the gradual surrender to another's avid fingers flickering expertly across bare skin, the light pinching and picking and nibbling of flesh as hands of discovery move in surprise from one freckle to another newly discovered mole. The momentarily disconcerting pain of pinched skin gives way imperceptibly to a soothing sense of pleasure, creeping warmly outwards from the centre of attention. You begin to relax into the sheer intensity of the business, ceding deliciously to the ebb and flow of the neural signals that spin their fleeting way from periphery to brain, pitter-pattering their light drumming on the mind's consciousness somewhere in the deep cores of being.

The experience is both physical sensation and social intercourse. A light touch, a gentle caress, can convey all the meanings in the world: one moment it can be a word of consolation, an apology, a request to be groomed, an invitation to play; on another, an assertion of privilege, a demand that you move elsewhere; on yet another, a calming influence, a declaration that intentions are friendly. Knowing which meaning to infer is the very basis of social being, depending as it does on a close reading of another's mind. In that brief moment of mutual understanding in a fast-moving, frenzied world, all social life is distilled in a single gesture.

To recognize what this simple gesture signals in the social world of monkeys and apes, you need to know the intimate details of those involved: who is friends with whom, who dominates and who is subordinate, who owes a favour in return for one granted the week before, who has remembered a past slight. The very

complexity of the social whirl creates those ambiguities we are so familiar with from our own lives.

Take, for instance, Jojo, who has just given birth to her first offspring. She cradles it in her arms, at once puzzled by this strange, wet thing and unsure what she should do. Already alert, the baby struggles to turn its head, as though surprised by the unfamiliar sights and sounds that surround it. They are not alone for long. Jojo's mother, Persephone, comes across. She peers down at the baby, sniffs it tentatively, and reaches out a hand to touch its rump. Persephone gives a quiet grunt and begins to groom Jojo, leafing through her fur, busying herself with the rituals of social interaction. But she cannot take her mind off the baby and keeps pausing to reach down and groom its head briefly, making smacking noises with her tongue and lips as she does so.

Jojo relaxes to the rhythm of her mother's grooming, and her eyes half close. But she jolts awake again when her baby gives a whimper. Two young juveniles are poking at the infant, fascinated by its wriggling as they pull tentatively on a leg. Jojo pulls the baby away and turns her back on them, disrupting Persephone's grooming. Persephone stares meaningfully at the two juveniles, her head lowered and her eyebrows raised in threat. The juveniles scamper off to annoy someone else.

Jojo and Persephone happen to be baboons, members of a troop whose life centres on a rocky outcrop in the wooded grasslands of eastern Africa. But they could be almost anywhere in Africa. Indeed, they could be members of any one of about a hundred and fifty species of monkeys and apes that live in the forests and woodlands of Asia, Africa and South America. Moreover, there is something eerily familiar in the process of their actions and responses – as if they might be humans too, members of any one of some 5000 cultural groups scattered across the globe from Alaska to Tasmania, Benin to Brazil. Here, in the minutiae of everyday life, is a point of convergence between ourselves and our nearest relatives, the monkeys and apes. Here is behaviour with which we instantly empathize, the innuendoes and subtleties of everyday social experiences.

Yet there is one difference: our world is infused through and

through with language, while theirs goes about its business in wordless pageant.

A human baby produces its first real words at about eighteen months of age. By the age of two, it has become quite vocal and has a vocabulary of some fifty words. Over the next year it learns new words daily, and by the age of three it can use about 1000 words. It is now stringing words together in short sentences of two or three words, calling your attention to objects, requesting this and that. Its command of grammar is already nearly as competent as an adult's, though it will still make amusing yet plainly logical mistakes, saying '*eated*' instead of '*ate*', '*mouses*' instead of '*mice*'. Then the floodgates open. By the age of six, the average child has learned to use and understand around 13,000 words; by eighteen, it will have a working vocabulary of about 60,000 words. That means it has been learning an *average* of ten new words a day since its first birthday, the equivalent of a new word every 90 minutes of its waking life.

This is an extraordinary achievement. It is no wonder that the machinery which makes this possible is so expensive to maintain. Although your brain accounts for no more than 2 per cent of your body weight, it consumes 20 per cent of all the energy you eat. In other words, pound for pound, the brain burns up ten times as much energy to keep itself going as the rest of the body does. The situation is even more extreme in young children, where the brain is actively growing as opposed to just ticking over. During the last stages of pregnancy, the foetus's brain is growing very rapidly and consumes 70 per cent of the total energy the mother pumps into her baby via the umbilical cord – and she, of course, has to provide all that. Even after birth, the brain still accounts for 60 per cent of the infant's total energy consumption during the first year of life. Lactation is an exhausting business.

It will come as no surprise to discover that we humans have the largest brains relative to body size of any species that has ever existed. Our brain is nine times larger than you would expect for a mammal of our body size. It is thirty times larger than the brain of a dinosaur of the same body size. Only the porpoises and dolphins come close to us in this respect; yet even though dolphins

are renowned for their intelligence and sociability, they still do not compete with humans on the verbal scale. Complex though their natural language of whistles and clicks may be, it does not seem to be in the same league as human language.

*

Because it seems to be unique, language appears all the more miraculous. Other species bark and scream, grunt and wail, but none speak. Perhaps inevitably, this has encouraged us to view the human species as special, reinforcing our habits of self-worship. Yet, when we look at our nearest relatives, the monkeys and apes, we find much that is familiar – the same intensity of social life, the petty squabbles, the joys and frustrations, the same whining children irritating exasperated parents as in our own private lives. However, neither monkeys nor apes have language in any sense that we would recognize from our everyday experience of human conversation.

How did it come about that we, the descendants of just such dumb apes, have this extraordinary power when they do not? The puzzle seems all the greater because we feel so at home with the social lives of monkeys and apes. What makes it seem familiar to us is the time they spend in close physical contact, busily attending to each other's needs in endless grooming sessions. They think nothing of spending hours leafing through each other's fur, combing, picking, parting the hairs with the single-mindedness of a human mother attending to her child's tangled mop.

The answer to this apparent puzzle lies, I suggest, in the way we actually use our capacity for language. If being human is all about talking, it's the tittle-tattle of life that makes the world go round, not the pearls of wisdom that fall from the lips of the Aristotles and the Einsteins. We are social beings, and our world – no less than that of the monkeys and apes – is cocooned in the interests and minutiae of everyday social life. They fascinate us beyond measure.

Let me give you a few statistics to reinforce the point. Next time you are in a café or a bar, just listen for a moment to your neighbours. You will discover, as we have in our research, that around two-thirds of their conversation is taken up with matters of social import. Who is doing what with whom, and whether it's a good or

a bad thing; who is in and who is out, and why; how to deal with a difficult social situation involving a lover, child or colleague. You may happen on a particularly intense exchange about a technical problem at work or a book just read. But listen on, and I'll wager that, within five minutes at the most, the conversation has drifted away again, back to the natural rhythms of social life.

Even were you to listen to the conversations in university common rooms or the restaurants of multinational companies, there at the very hub of our intellectual and business life the situation would not be all that different. To be sure, you will occasionally come across an intense discussion of some abstruse scientific technicality or business deal. But that will only be when a visitor is being entertained or when individuals meet for the specific purpose of thrashing out some key problem of mutual concern. For the rest of the everyday conversations, it's unlikely that more than about a quarter would be concerned with matters of such intellectual weight as the cultural, political, philosophical or scientific issues of the day.

Here are two more statistics, this time gleaned from the world of the printed page. Of all the books published each year, it is fiction that tops the list in terms of volume of sales. Take a glance around your local bookshop: university campus bookshops aside, two-thirds of the shelf space will contain fiction. Even then, it is not the rip-roaring adventure yarns that attract us, but the unfolding intimacies of the main characters. It is the way they handle their experiences that fascinates us, their reactions to the vagaries of life – those 'there but for the grace of God go I' situations. And out of all this fiction, it is not the writings of the acclaimed masters that top the publishers' sales-lists, but romantic fiction.

Everything else – from art history to photography and sport, from the sciences and handicrafts to car mechanics for the home enthusiast – is put together under the all-encompassing label of 'non-fiction'. Only biographies can lay any claim to a significant share of the market in their own right. Every year, a torrent of such books appears, retelling the life experiences of the rich, the famous and the also-rans. Every TV newscaster, every politician, every actress, every minor sportsman from darts to football, has

published his or her story. Long-dead novelists, generals and politicians all command their fair share of attention.

And why do we buy such books? It's not to learn about the sport in question, or how to read the news on TV, but to learn about the private lives of our heroes or those who have become as familiar to us as our own families. We want the intimate details, the gossip, their innermost thoughts and feelings, not detailed technical analysis of method acting or parliamentary procedure. We want to know how events affected them, how they reacted to the highs and lows of life, what they thought about their friends and relations, the indignities they suffered, the triumphs they took part in.

Take another look at your daily paper. How many column-inches are devoted to substantive news about politics and economics? Here is the score for two of yesterday's papers, the upmarket London *Times* and the mass-market UK tabloid *The Sun*. No less than 78 per cent of the 1063 column-inches of text in the downmarket *Sun* was concerned with 'human interest' stories, stories whose sole purpose seemed to be to enable the reader to become a voyeur of the intimate lives of other individuals. That leaves just 22 per cent for news and commentary on the political and economic events of the day, for the sports results, for news of upcoming cultural events, and for everything else. Even the august *Times* only devoted 57 per cent of the 1993 column-inches of text in its main news and review sections to political and technical news; 43 per cent was devoted to human interest stories (interviews, news stories of a more salacious kind, and so on). The number of actual column-inches devoted to 'gossip' was virtually identical in the two papers: 833 and 850 respectively.

It's clear that most of us would rather hear about the doings of the great and the not-so-good than about the intricacies of economic processes or the march of science. The trial of O. J. Simpson aroused more interest and achieved higher viewing figures than the deliberations of US congressional committees, despite the fact that the conclusions of those committees will have an impact on our future lives far beyond any conceivable impact that OJ's guilt or innocence might have.

Here, then, is a curious fact. Our much-vaunted capacity for

language seems to be mainly used for exchanging information on social matters; we seem to be obsessed with gossiping about one another. Even the design of our minds seems to reinforce this. Of course, great things are possible with language: Shakespeare and T. S. Eliot are not figments of our imagination, neither are the unsung writers of instruction manuals; we really can use language for profit and pleasure. And language remains our greatest treasure, for without it we are confined to a world that, while not one of social isolation, is surely one that is a great deal less rich. Language makes us members of a community, providing us with the opportunity to share knowledge and experiences in a way no other species can. So how is it that we have this extraordinary ability, yet most of the time seem to do so little with it?

A century of intensive research in linguistics, psychology and speech science has taught us a great deal about language: how it is produced, what grammar does, how children learn it. Yet at the same time, we know almost nothing of why it is that we alone, of all the tens of thousands of living species, possess this extraordinary ability. We do not know for sure when it evolved or what the first languages ever spoken sounded like. However, during the last ten years we have learned more about the background to human evolution and the behaviour of our nearest relatives, the monkeys and apes, than we had in the previous thousand years put together; and this new evolutionary perspective, firmly rooted in modern Darwinian biology, has focused our attention on questions about language that have hitherto been overlooked. In the process, aspects of our own past that had been buried beneath the murky waters of history for hundreds of millennia have finally come to light.

The approach I adopt is thus very different from the perspectives of those who study language conventionally. For the past century, the study of language has focused prinicpally on three main areas: linguistics (with its pervasivie interest in the structure of grammars); socio-linguistics (with its interest in the way sex and social class influence the words we use and how we pronounce them); and the neurobiology of language (the brain structures that allow us to speak and understand). Although there has been some interest in the archaeology and the history of language (and the

processes of dialect formation), these have been considered both peripheral and trivially speculative by the mainstream interests.

Even less attention has been devoted to the function of language and the reasons why we have it and other species do not. Indeed, such questions have often been deliberately eschewed. Instead, language has often been viewed as an 'epiphenomenon', something that appeared as a by-product of other biological processes (notably, our super-large brains) and for which no other kind of explanation is necessary.

This curious state of affairs owes its origins largely to the claim (widely held in the social sciences) that human behaviour in general, and language in particular, are social phenomena and thus lie beyond the pale of biological explanation. Neurobiology might provide us with insights into the machinery of language production and comprehension, but beyond that, biology sheds little light on the nature of language. By and large, biologists have respected this demarcation line. But the recent developments in evolutionary biology have had far-reaching implications for our understanding of human behaviour as well as that of other animals, and language has inevitably come under this new and more powerful microscope.

This book is about those new discoveries, and about the origins of our capacity for language. I shall examine not only what we do with language but also the more fundamental questions of why we have it, whence it came and how long ago it appeared. The story is a magical mystery tour that will take us bouncing from one unexpected corner of our biology to another, from history to hormones, from the very public behaviour of monkeys and apes to the moments of greatest human intimacy. It will take us back through the chapters of human history to the time before we were human, when we were but apes of a not especially unusual kind. What did the earliest languages sound like? Who spoke them? And why, from these early hesitant steps, did languages evolve, changing and diversifying so much that now we have around 5000 mutually incomprehensible tongues (and that's not counting the ones that became extinct in the millennia before anyone could write them down)?

CHAPTER 2

Into the Social Whirl

What characterizes the social lives of humans is the intense interest we show in each other's doings. We spend literally hours in each other's company, stroking, touching, talking, murmuring, being attentive to every detail of who is doing what with whom. You might think that this marks us out as a cut above the rest of life, but you would be wrong. If we have learned anything from the last thirty years of intensive research on monkeys and apes, it is that we humans are anything but unique. Monkeys and apes are just as social as we are, just as intensely interested in the social whirl around them.

So to set the scene on the human story, we need to go back in time to our primate heritage. What is it about primates that makes them so different from other animals, that in turn gives us our unique character? The answer is that primates live in a very much more sophisticated kind of social world than other animals do.

The Monkey on my Back

Monkeys and apes are highly social species. Their lives revolve around a small group of individuals with whom they live, work and have their being. Without its friends and relations, a monkey would no more be able to survive than a human being could. The social life of primates is intense and all-consuming. They spend a great deal of the day engaged in social grooming with their special friends. Like Jojo and Persephone, whose story opened Chapter 1, these are often matrilineal relatives, related through their mother's line in an unbroken chain of personalized mother-daughter relationships that run back through the mists of time to some ancestral primate pre-Eve.

The biologist Richard Dawkins has reminded us just how short this chain of ancestry really is. Imagine yourself, he says, standing on the Indian Ocean shore just where Kenya abuts on to the southern border of Somalia. Face south and reach out to hold your mother's left hand in your right hand. Facing you is a chimpanzee of the same age and sex, holding its mother's hand in its left hand. Your mother is holding her mother's hand in her right hand, and the chimpanzee's mother is holding *her* mother's hand in her left hand. The double chain of generations snakes its parallel way across the African plains westwards towards the distant peak of Mount Kenya, a faint brown smudge emerging above the clouds on the horizon. By the time the chain reaches Mount Kenya itself, a distance of no more than 300 miles, the mother-daughter lines have converged and met in a single mother-Eve. She lived somewhere on the East African savannahs some time between 5 and 7 million years ago.

The number of generations between you and this ancestral Eve is surprisingly small. Even allowing a modest yard and a half for the span of outstretched arms and twenty years as the average generation length, there are no more than 350,000 individuals separating you on the Kenyan coast from her on the slopes of Mount Kenya. That's barely a third of the people who work for the National Health Service in the UK, no more than the total population of a modest English county town or, to put it into really dramatic perspective, about half the number of babies born in England and Wales each year. Even allowing just ten years per generation (probably a better estimate of the typical age at which females give birth for the first time among chimpanzees and our earliest ancestors), the line of life would stretch no further than the western shore of Lake Victoria, some 600 miles from the coast, perhaps 700,000 individuals in all.

It's a sobering thought that so few generations separate us from the common ancestor we share with the chimpanzees. Here, indeed, is not just our cousin but our sister-species. It is no wonder that some biologists have started to refer to us humans as the third chimpanzee (in addition, that is, to the common chimpanzee and its closely related sister species the bonobo or pygmy chimpanzee).

But let's pursue Dawkins' graphic metaphor a little further back in time. How much further will we need to go to reach the common ancestor of the Old World monkeys and apes?

At most 85 miles further on, a week's easy walk beyond Mount Kenya, we come to the common ancestor of the gorilla and the chimp-human lineage. That's something like 100,000 generations if females give birth for the first time at about ten years of age, as most great apes do. On the same scale, some 700 miles further on we come to the common ancestor of the human-chimp-gorilla family and the orang-utan, the endearing red ape of the Asian forests. We are now just on the Uganda-Zaïre border, a mere stone's throw to the north of the Virunga Volcanoes where Dian Fossey lived and died watching her beloved mountain gorillas.

Generation lengths get shorter as we go further back among the smaller-bodied species, perhaps 5-6 years on average once we are past the common ancestor of the living species of great ape – but at the same time, the length of an outstretched arm is now no more than 18 inches, a yard between adjacent noses. It's just another 400 miles to the common ancestor of the great apes and the gibbons, the lesser apes now found only in south-eastern Asia. From there to the common ancestor of all the monkeys and apes of Africa and Asia will be another 1100 miles. By now, we are somewhere in the middle of Congo-Brazzaville, with still another 500 miles to go to the Atlantic Ocean. We have not even traversed the African continent at its narrower part. We have travelled back in time through 30 million years, and there have been just four million females in the unbroken chain that links you and that long-dead pre-pre-Eve that gambolled through the tree-tops in an ancient African forest. That's less than half the population of London or Paris, barely a quarter of the population of modern-day Rio de Janeiro.

We are almost exactly half-way back in time towards the Age of Dinosaurs. We are still a long way from the origins of the first, primitive pre-primates in the dying days of these great reptiles' empire. Most people are surprised to find that, so far from being a new and advanced product of evolution, the primates are in fact one of the oldest lineages of mammals, a close relative of the

insectivores, the bats and the flying foxes. Their and our early ancestors dodged the same heavy-footed lizards in the twilight years of the long reign of the dinosaurs.

The ancestral primates were small, squirrel-like animals with long pointed noses that scuttled among the bushes and trees of the dense tropical forests that existed during the closing millennia of the Age of the Dinosaurs. In the new freedom brought by the post-dinosaur years, they diversified into myriad new species in hundreds of different niches, mostly in the northern hemisphere in what is now Europe and North America. These species were all prosimians, whose living descendants include the lemurs of Madagascar and the galagos and lorises of Africa and Asia. For 30 million years they dominated the woodlands and forests of the northern hemisphere.

Then the earth's climate cooled rapidly over a period of around two million years. Water surface temperatures in the tropical Pacific dropped from a sultry 23°C to around 17°C.[1] The tropical zones shifted southward towards their present equatorial position. As these climatic changes developed, one of these prosimian groups began to evolve in an entirely new direction. Brain size increased, faces became more rounded. It was the beginning of a major break with the past that ultimately gave rise to the so-called anthropoid primates (the monkeys and apes as we know them

1. We can determine temperatures in the remote past thanks to a curious quirk of physics. There happen to be two isotopes (or forms) of oxygen, one being fractionally heavier than the other. A molecule that happens to have been formed with atoms of the heavier isotope, oxygen-18, will not evaporate from the oceans as easily as its counterparts made from the lighter oxygen-16 atoms; but once evaporated, it condenses more rapidly to form snow. Hence, by measuring the ratio of the two forms of oxygen in ice or snow, we can tell whether one time period was colder or warmer than another: colder periods will have a higher proportion of the lighter oxygen isotope. Ice cores drilled from the Greenland or Antarctic ice caps are examined inch by inch for changes in the ratio of the two oxygen isotopes. With their ratio in samples of today's snow as a standard, the series can be anchored to current global temperatures, and past temperatures can be read off. Another way of doing it is to examine the composition of the calcium carbonate in the shells of extinct oceanic plankton. The plankton take up oxygen from the seas in which they live to make their skeletons. In cooler times, there will be a higher proportion of the heavier oxygen isotope in sea water because more of the lighter ones will have evaporated.