

CARL SAGAN

THE DRAGONS OF EDEN

SPECULATIONS ON THE EVOLUTION
OF HUMAN INTELLIGENCE



"The number of scientists who can speak in clear tongues and occasionally touch on near-poetry is small. J. Bronowski was one. Loren Eiseley is another. To these names now add: Carl Sagan. Would that we could clone a dozen more like him in the next half-century."

— Ray Bradbury

In The Cosmic Connection, Dr. Carl Sagan dramatized for the layman the search for life beyond the Earth. Here he turns with the same lucidity and excitement to the equally fascinating inner world of the mind. In a breathtaking overview from prehistory to the present he explains how human beings evolved, genes and brains together; who our ancestors and their competitors were; how our brains and the brains of other animals work; and why other intelligent beings will be sufficiently like us intellectually to permit interstellar communication.

Throughout the book there are quite literally mind-blowing revelations about what we have learned recently of the ability of other animals to reason, what computers have taught us about the mechanism of our brains, and what the latest theories are about the functions of sleep and dreams and the storage of memory. There are also fascinating excursions into myth and legend and their possible relationship to recent discoveries. And there are Dr. Sagan's bold speculations on the implications of these discoveries, and on what the next steps in human evolution may be.





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THE DRAGONS OF EDEN




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SPECULATIONS
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CARL SAGAN



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For my wife, Linda, with love



Mankind is poised midway between the gods and the beasts.

PLOTINUS

The main conclusion arrived at in this work, namely, that man is descended from some lowly-organized form, will, I regret to think, be highly distasteful to many persons. But there can hardly be a doubt that we are descended from barbarians. The astonishment which I felt on first seeing a party of Fuegians on a wild and broken shore will never be forgotten by me, for the reflection at once rushed into my mind—such were our ancestors. These men were absolutely naked and bedaubed with paint, their long hair was tangled, their mouths frothed in excitement, and their expression was wild, startled, and distrustful. They possessed hardly any arts, and, like wild animals, lived on what they could catch; they had no government, and were merciless to everyone not of their own small tribe. He who has seen a savage in his native land will not feel much shame, if forced to acknowledge that the blood of some more humble creature flows in his veins. For my own part, I would as soon be descended from that heroic little monkey, who braved his dreaded enemy in order to save the life of his keeper; or from that old baboon who, descending from the mountains, carried away in triumph his young comrade from a crowd of astonished dogs—as from a savage who delights to torture his enemies, offers up bloody sacrifices, practices infanticide without remorse, treats his wives like slaves, knows no decency, and is haunted by the grossest superstitions.

Man may be excused for feeling some pride at having risen, though not through his own exertions, to the very summit of the organic scale; and the fact of his having thus risen, instead of having been aboriginally placed there, may give him hopes for a still higher destiny in the distant future. But we are not here concerned with hopes or fears, only with the truth as far as our reason allows us to discover it. I have given the evidence to the best of my ability; and we must acknowledge, as it

seems to me, that man with all his noble qualities, with sympathy which feels for the most debased, with benevolence which extends not only to other men but to the humblest living creature, with his godlike intellect which has penetrated into the movements and constitution of the solar system—with all these exalted powers—Man still bears in his bodily frame the indelible stamp of his lowly origin.

CHARLES DARWIN
The Descent of Man

I am a brother to dragons, and a companion to owls.

Job 30:29
