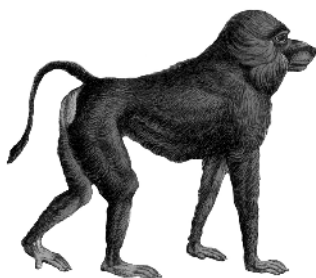


EUGÈNE MARAIS

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THE SOUL  
OF THE APE  
&  
MY FRIENDS  
THE BABOONS





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EUGÈNE MARAIS

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## THE SOUL OF THE APE

by Eugène N. Marais

First published in Great Britain by Anthony Blond Ltd, 1969

## MY FRIENDS THE BABOONS

by Eugène N. Marais

First published in Great Britain by Blond & Briggs, 1975

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Edited by David L. Major

ISBN 978-0-9807706-7-4

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This book contains the texts of the two titles by Eugène Marais – *The Soul of the Ape* and its companion text, *My Friends the Baboons*. Each title is also available as a separate ebook. See the publisher's web site for details.

By the same author:

*The Soul of the White Ant* is available separately as an ebook and in paperback.

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web - [adistantmirror.com.au](http://adistantmirror.com.au)

email - [admin@adistantmirror.com.au](mailto:admin@adistantmirror.com.au)

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## Publisher's Note

Eugène Marais spent three years living in the South African wilderness in close daily contact with a troop of baboons. He later described this as the happiest, most content time of his troubled life. This period produced two works which are testament to his research and conclusions; they have very different histories.

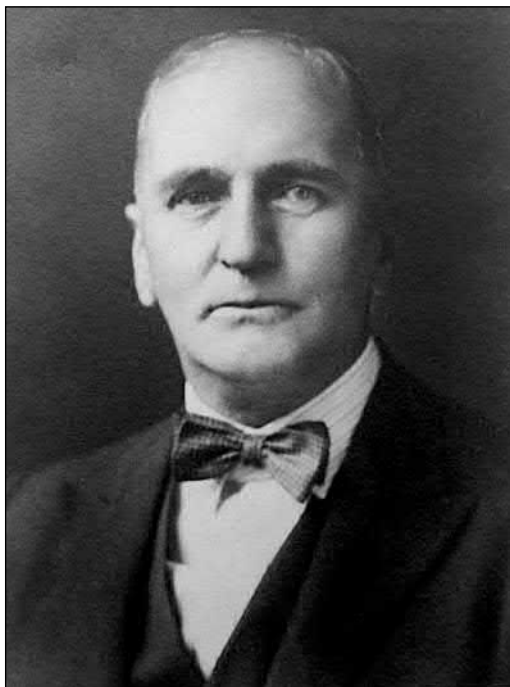
Firstly, there was a series of articles written in Afrikaans for the newspaper *Die Vaderland*. They were then published in book form under the title *Burgers van die Berge*, and were first published in an English translation in 1939 under the title *My Friends the Baboons*. These pieces were written in a popular vein suitable to a newspaper readership, and were not regarded seriously by Marais himself. They are a journal; a series of anecdotes and impressions.

*The Soul of the Ape*, which Marais wrote in clear and precise English, was the more serious scientific document; however after his death in 1936, it could not be found. It was lost for 32 years, and was recovered in 1968, and published the following year.

The excellent introduction by Robert Ardrey that is included in this volume was part of the 1969 and subsequent editions of *The Soul of the Ape*, and adds greatly to an appreciation of its importance.

Together, these three texts give us as complete a picture as we will ever get of Marais' three year study of these complex relatives of humanity, and its implications for the study of consciousness.

Eugène Marais is also the author of *The Soul of the White Ant*, his exploration of the psyche and social life of the termite. It was always his intention that the two bodies of work, on termites and apes, were companion pieces in the search for an understanding of the psyche that would span the gulf between the insect and primate worlds. The point of Marais' work was, always, the mystery of consciousness itself, on which grounds it is as relevant as ever.



**Eugène Marais**

EUGÈNE MARAIS, the distinguished South African scientist, lawyer, journalist and poet, was born in a farming community near Pretoria in 1872. Educated in the Transvaal, Orange Free State and Cape Province, he made journalism his first career.

By 1890, he was editor of *Land en Volk*, and two years later, at the age of 21, he owned it. In 1894 he married, only to see his wife die the following the year after the birth of his son. This was a loss from which he never really recovered.

Shortly afterwards, he moved to London where he studied law and medicine. By the time of his admission to the bar at the Inner Temple, the Boer War was in progress, and Marais returned to Africa to assist his countrymen.



In 1910, he went to Johannesburg to establish himself as an advocate, but increasing depression of spirits drove him to retreat to Waterberg, a mountain area in northern Transvaal. Settling near a large group of chacma baboons, he became the first man to conduct a prolonged study of the primates in the wild. It was during this period that he produced *My Friends the Baboons*, and gathered the material for the more scientific *The Soul of the Ape*.

\*

*My Friends the Baboons* is that rare piece of writing; a paper of scientific observation which could reduce anyone of compassion to tears – for who cannot be moved by the final chapter when a tribe of baboons appeals to Marais and his companion to save their young?

Marais, journalist, poet, scholar and scientist, spent more than three years studying the chacma baboons in the wild, and his notes, comments and conclusions in this pioneering work have been a source of inspiration since they were written. At the time he began his work, he was able to study a troop of baboons who had never known man. The four-year Boer War removed the settlers, and the baboon troop led an undisturbed life, with no fear of their modern and most devastating foe: human farmers.

Marais was fortunate in being able to watch this animal society in a natural environment. His observations of what they did and how they organised their lives together, how they expressed themselves, and above all, their ‘instinctive’ reactions, allowed Marais to draw conclusions on the development of animal and human psyche which caused, and continue to cause, debate in scientific circles, and which are as pertinent today as they ever were.

The keenness of his observations is magnificently matched by his compassionate prose. Even the weight of his conclusions is

expressed in language so eloquently moving that the very style of the book makes it a treasure to read and possess.

Doris Lessing wrote in *The New Statesman*:

“He offers a vision of nature as a whole, whose parts obey different time-laws, move in affinities and linkages we could learn to see: parts making wholes on their own level, but seen by our divisive brains as a multitude of individualities, a flock of birds, a species of plant or beast. We are just at the start of an understanding of the heavens as a web of interlocking clocks, all differently set: an understanding that is not intellectual, but woven into experience. Marais brings this thought down into the plain, the hedgerow, the garden.”

\*

He returned to Pretoria to practise law, to resume his animal studies, and to write poetry in Afrikaans. (He could write in English, but preferred not to, because of his horror of British behaviour during the Boer War.)

In 1926, the year after he had published a definitive text on his original and ground-breaking conclusions about the white ant, the famous European writer Maurice Maeterlinck stole half of Marais’ work, and published it as his own. Out of dignity, Marais refused to sue.

This period of Marais’ life is discussed in some detail in Robert Ardrey’s introduction.

After years of increasing difficulties with morphine, depression and anxiety, he took his own life in 1936.



# Glossary

The following terms used in this book might be unfamiliar.

*bushveld* – a sub-tropical woodland ecoregion of Southern Africa named after the term veld. It encompasses most of Limpopo Province and a small part of the North West Province of South Africa, the Central and North-East Districts of Botswana and the Matabeleland South, and part of the Matabeleland North provinces of Zimbabwe.

*bywoner* – a poor white tenant farmer who labours for the owner and does some farming of his own

*dagga* – the South African term for marijuana or cannabis

*dassie* – a small, herbivorous mammal in the order Hyracoidea, also known as the rock hyrax

*duiker* – any of several species of small southern African antelopes of the Cephalophinae subfamily

*gwarrie* – a shrub whose fruit can be fermented for vinegar

*kaffir* – a black South African

*kaross* – a treated animal skin cloak or blanket with the hair still left on

*klapper* – coconut

*klipbuck* – a type of deer

*kloof* – a deep glen or ravine

*kop* – can have various meanings; in this context it refers to the crest of a rock formation or hill

*krans* – can have various meanings; in this context it refers to a cliff

*kwagga* – zebra

*makoppa* – black mamba snake



*mealie* – an ear of corn or maize

*moepel* – a tree which provides an edible fruit

*poenskop* – a large South African sea bream of shallow waters,  
which typically has a fleshy bump on the snout

*poort* – a narrow pass through mountains

*spruit* – a small watercourse, typically dry except during the  
rainy season

*stad* – city, or settlement

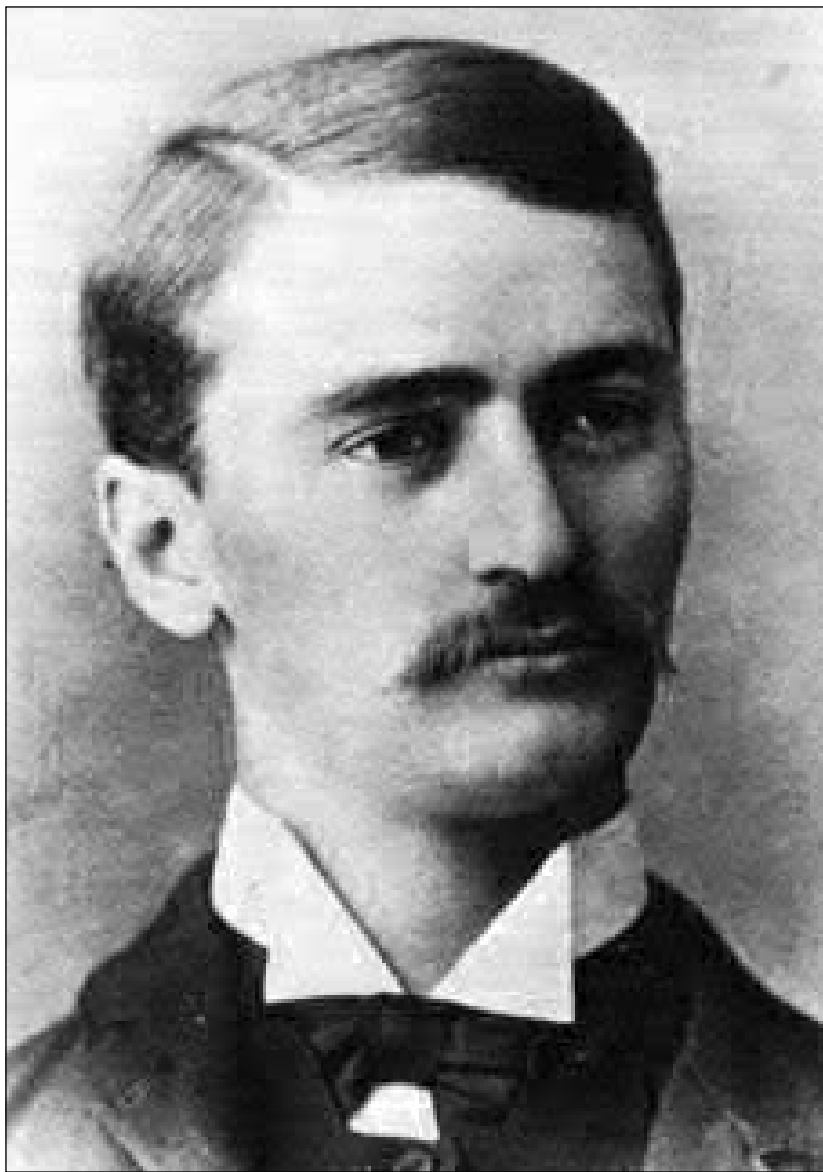
*stoep* – A raised veranda in front of a house

*tambotie* – Marais describes ‘tambotie grass’, yet the Tamboti is  
a medium-sized South African tree

*uithoek* – backwater; a remote, isolated place that is perceived  
as primitive, godforsaken or backward

*veld* – the open grassland of South Africa and  
neighboring countries

*Volksraad* – the parliament of the former South African  
Republic. It existed from 1857 to 1902 in part of what is now  
South Africa. The body ceased to exist after the British  
victory in the Second Anglo-Boer War.



*Eugène Marais*

## INTRODUCTION

ROBERT ARDREY

HE WAS a courtly man, gentlemanly in an old-time sense, and handsome according to the traditional definitions of masculinity. We might say today that he possessed 'charisma'. His charm was something that contemporaries who outlived him recall with fondness. His paternal magnetism was that of a Pied Piper of Hamelin – a quality to which we shall return.

But he was also a poet with no eternal page to write upon. As a scientist he was unique, supreme in his time, yet he was a worker in a science as yet unborn. He was a freak, spawned by the exuberance of mankind, an immortal who speaks to us from the grave: Beware and do likewise.

\*

Eugène Marais was a human community in the person of one man. He was a poet, an advocate, a journalist, a story-teller, a drug addict, a psychologist, and a natural scientist.

He embraced the pains of the many, the visions of the few, and perhaps the burden was too much for one man. But perhaps, also, none but such a human community in one man could have written, almost half a century ago, *The Soul of the Ape*. This manuscript, which was lost for so long, must rank today as a significant contribution to a science that did not exist at the time of its composition.

## INTRODUCTION

When in 1961 I dedicated my book *African Genesis* to Marais' memory, I wrote:

As no gallery of modern art can fail to be haunted by the burning eyes of Vincent Van Gogh, so the pages of no future science can fail to be haunted by the brooding, solitary, less definable presence of Eugène Marais.

At that time, we knew of the existence of the manuscript through his letters. And we knew its theme: *the evolutionary origins of the subconscious mind in man*. But after his death in 1936, the manuscript could not be found. And a quarter of a century later it seemed lost forever.

But then with the recovery of *The Soul of the Ape*, and its publication by Human and Rousseau Press (Johannesburg, 1969), Marais' presence in the sciences has taken on a more arresting definition. But it remains no less solitary, no less brooding; and no less, like some lost and recovered portrait itself, a tragic masterpiece.

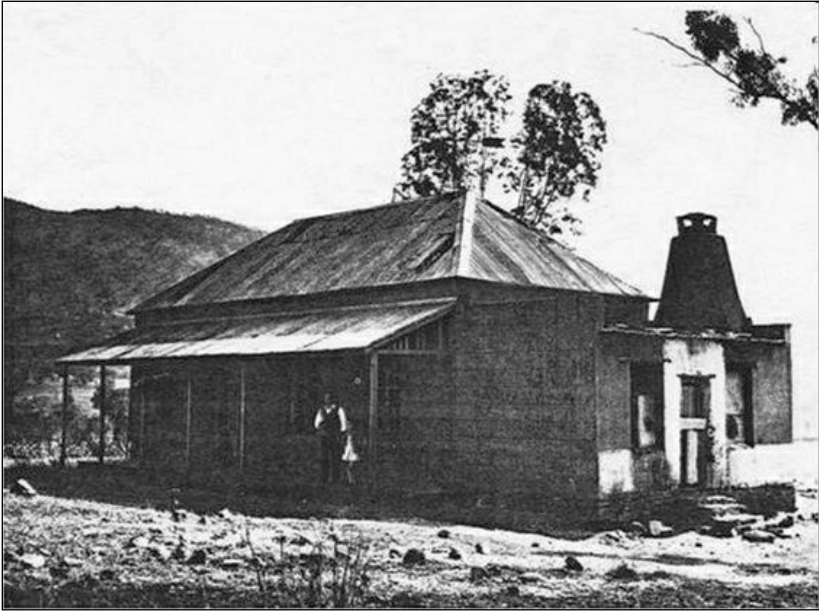
\*

Eugène Marais was born in South Africa in a farming community near Pretoria in 1871. In a letter he described it as “an isolated *uithoek*, as completely cut off from the rest of the civilised world, as the loneliest isle in the Pacific”.

His family was Afrikaner, of the same people who in the 1830s had abandoned the Cape of Good Hope to the new domination of the English and had driven their ox-teams, their covered wagons, and their herds far north into the African interior to found their own republics, the Transvaal and the Orange Free State.

These people, in turn, were descendants of the original settlers sent out to the Cape by the Dutch East India Company in the later 1600s. Although we tend to think of the Afrikaner as entirely

## INTRODUCTION



*The Marais homestead*

Dutch-derived, in fact there were many French among them. Huguenots, they had taken refuge in Holland; and the Dutch government, not knowing quite what to do with them, sent off many along with their own colonists to that shining end of the world, the Cape of Good Hope.

Marais is a common name in South Africa. I have heard the joke made that had there not been among those early settlers two Frenchmen named Marais, both of enormously prolific potential, South African telephone directories would be many pages shorter. French though the name may have been to begin with, today it is as typically Afrikaner as 'Van der Merwe'. Within a very few generations after the founding of the colony in 1652, Dutch and French had merged their peoples into the identity we know as the Afrikaner, speaking the language we call Afrikaans.

The history of his people and their language, we shall see,



## INTRODUCTION

entered like some old, fated burden into the life of Eugène Marais.

There are contradictory versions of Marais' early life, even of his place of birth. His son, for example, believes his father to have been born in Pretoria, but I am drawing my version largely from Marais' own account (however unreliable) as described in letters to his translator in London, Dr Winifred de Kok, all written shortly before his death.

The letters have never been published, but each is a testament to his wit, his compassion, and his perception – not to mention his mastery of the English language. In one he writes:

My first schoolmaster – in fact the only one procurable during my boyhood days – was a missionary of the Church of England, who is still alive and has risen to high honours in the hierarchy of his communion. He has never learned to speak a word of Afrikaans.

From the years of his earliest education Marais was acquiring his admiration on the one hand, and his resentment on the other, of all things English.

He seems to have spent some of his early years in Pretoria, some in the Orange Free State, and he finished his schooling in Paarl, the lovely vineyard-fenced town in the Cape. When he settled in Pretoria, the capital of the Transvaal Republic, he began the first of his careers, as a journalist.

Such was his energy that by 1890 he was editor of *Land en Volk*, and by 1892 when he was twenty-one, he owned it. His son reports that his father's comments as a parliamentary reporter were so caustic that he received the first of many honours: exclusion from the press gallery by resolution of the entire *Volksraad*.

Later, as a consequence of his resolute attacks on the mighty Paul Kruger, president of the Transvaal, he received a still higher

## INTRODUCTION

honour: indictment for high treason. He was acquitted by the Pretoria Supreme Court.

It was during this period of journalism that he was introduced to morphine. He suffered severely from neuralgia, and the drug was easily available. In 1894, when he was only twenty-two, he married Aletta Beyers, only to see his young wife die the following year after the birth of their son.

How much this blow contributed to his later, lifelong addiction we cannot know. Quite shortly, he gave up his career in Pretoria and went to London, where on the advice of friends he studied law. He refers in his letters to medical studies as well, and his understanding of physiology would seem to confirm it. But by the time of his admission to the bar at London's Inner Temple, the Boer War had begun.

No episode in modern history so acted to give imperialism a bad name as Britain's war against the Boers. So long as the little republics of the Transvaal and the Orange Free State consisted of nothing but a few communities of outland farmers with a peculiar language and peculiarly independent ways, there was little to tempt the acquisitiveness of great powers. But when in 1886 gold was discovered on the reef where Johannesburg now stands, and there began a rush for the Witwatersrand to which not even the Klondike can be compared; then it could have been predicted with certainty that the peaceful years had ended. Britain launched its war of conquest in 1899, and in London, Marais became an enemy alien on parole.

With ease we forget our own past obscenities: with difficulty we forget the obscenities of others. We tend today to dismiss the Boer War as a tiresome episode in somebody else's history. But it was a war obscene in both purpose and execution.

## INTRODUCTION

Unable to inflict final defeat on the Afrikaner commandos and their guerilla tactics, Lord Kitchener turned to a scorched-earth policy and introduced to the language of the twentieth century the term 'concentration camp'.

The high *veld* was devastated, crops and farmhouses burned, livestock driven off, Boer families pressed into camps. It is true that over a hundred thousand survived the concentration camps. But it is also true that by the war's end, twice as many Boer wives, children, and elderly had died of Kitchener's new invention as Boer men had died before British guns. The Afrikaner would never forget.

And Eugène Marais never forgot. The private tragedy which morphine would bring to his life was now compounded by the public tragedy of his people. While according to his letters his intention had been to qualify in medicine as well as law, by the end of the war in 1902, he had escaped from Britain and was in Central Africa with an expedition trying to get munitions and medical supplies to his countrymen across the Limpopo.

He was too late. Decades later, in September 1935, writing to his translator in London, he recalled the circumstances of his education in English, of his long experience in London, and of the final defeat. And he wrote:

You will perhaps be astonished to learn what my psychological 'reactions' were to the jumble of circumstances. The most enduring result was that it made me far more bitter than men who took part in the war at a more advanced age and who had had less to do with the English before the war.

It was for purely sentimental reasons that I refused to write in any language but Afrikaans, notwithstanding the fact that I am far more fluent and more at ease in

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English. I have written several monographs in other languages; but they were all scientific and most of them were at once consigned to the oblivion of archives of learned societies.

The nearest I ever attained to 'publication' in this connection was a monograph of mine included in the annals of the Smithsonian Institution, a thing which I believe is regarded as a desirable honour by scientists throughout the world.

Ours is the good fortune that he wrote his lost, unfinished masterpiece, *The Soul of the Ape*, in his own easy English. Eugène Marais Jr believes that his father intended it for the Smithsonian Institution in Washington. But it was Marais' tragic fortune that the pain of his people became so intensely his own that he confined almost all of his writing to a language understandable by so few. Not until after his death were translations of his two classics, *My Friends the Baboons* and *The Soul of the White Ant*, published in English.

There is a degree of disagreement as to the exact date when Marais initiated his studies of animals in a state of nature. In *African Genesis*, I wrote:

...so deep was his depression immediately following the war that, renouncing the society of men, he retreated to the Waterberg, a mountain fastness in the northern Transvaal, and accepted the society of animals. The date, one must calculate, was 1903.

The internal evidence of *The Soul of the Ape* roughly supports this calculation. As Marais describes the situation, his intimacy with the baboons of the Waterberg was only possible because for years the area had been depopulated; the animals had heard no gun fired, and it would still be some time before the ruined

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farmers and their families would return to resume their lives. We now know, however, that in Central Africa, Marais contracted malaria, an affliction which would recur throughout his life. In 1903 he was hospitalised in Portuguese East Africa, and not till the following year did he return to Pretoria.

We may never know the exact date when Marais retreated to the Waterberg. We can be sure only that it was at an early moment in the century, and that when he and a companion took up residence near a large wild troop of chacma baboons, he became the first man in the history of science to conduct a prolonged study of one of man's primate relatives in a state of nature.

But we must not overstate his then role as a scientist. He was a novice. No boy could have grown up as did he, of course, in the South African back country and fail to be fascinated with animals and their ways. Whatever medical training he may have had in London to forward his sophistication in the natural sciences, his legal training sharpened his sense of observation and proof.

But Marais was untrained and, in the field of animal observation, unsophisticated. In *The Soul of the Ape* he emphasises the handicaps of isolation – the lack of libraries, and the means of finding out what others had accomplished.

But wisely he adds:

We approached this investigation without any preconceived ideas, and although at the beginning inexperience may have left much to be desired in our methods, we had at least no theories to verify.

Since Marais was scaling a scientific Matterhorn that no man had ever attempted before, it was well for him – and for us – that he carried no obsolete luggage. The early vignettes of his life in the Waterberg are the substance of the volume *My Friends the*

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*Baboons*. They are among the most charming tales ever told by a naturalist. It would be almost sixty years before a comparable study of the wild baboon would be made by trained observers, and the wonder is not that this untrained pioneer should have made errors of observation and interpretation, but that his sight in general should have been so true.

Nevertheless, the reader seeking the facts rather than the joys of life should proceed with care. In his letters, Marais wrote:

As a matter of fact, I have always been a little ashamed of these tales, they lie so far outside the sphere of what I have always regarded as my real work. They appeared as *feuilletons* in an Afrikaans newspaper and were never intended to assume a more enduring apparition.

The scientist who in his maturity would write *The Soul of the Ape* may well have been embarrassed by the early tales. But *My Friends the Baboons* has endured, despite its author's qualms, as a slim, unforgettable volume, the first of its kind in our literature. And the three years in the Waterberg not only relieved Marais for at least a time from the pain of a world from which he had fled, but immersed him in animal wonders that, taking shape in his mind, would provide the frontier for a new science.

Later in this essay I shall come back to the years in the Waterberg, since they furnish a main stage as well as major inspiration for *The Soul of the Ape*. His work there no longer possible, he returned to Pretoria to establish himself as an advocate and resume to an extent his career as a journalist.

Through the years, however, he seems never to have ceased his serious progress as a scientist, or to have lost contact with the bush and *veld*. His main preoccupation took form: the human psyche. With that preoccupation, his life work took two roads:

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the study of those animals most like ourselves – the primates – and the study of those most unlike ourselves – the social insects. And as if all this were not enough, he began to find in his native language the materials of the poet.

Throughout its history the Afrikaans language had been largely of a vernacular sort. Then perhaps as another psychological consequence of the Boer War, a surge of literary activity came about. Given Marais' morbid dedication to Afrikaans, his fascination for the movement may easily be understood.

As early as 1885, when he was fourteen, he had written his first poem in English. But *Winternag* was one of the earliest of his Afrikaans poems to find high place in the new literature. In it, and in all his poetry, one finds a brooding, a melancholy, an expression of man's fate.

One of the most memorable is *Mabalel*, a haunting fable of the chieftain's lovely daughter who in all gay innocence ran down to the bank of the Limpopo for water:

*Vinnig langs die paadjie trippel Mabalel*

*Vrolik klink die liedjie*

*Wat die klingelinge van haar enkelringe vergesel*

Swiftly down the footpath comes tripping Mabalel

And gaily sounds the song she sings

To the rhythm of her tinkling ankle rings.

Nothing could warn her that in the depths waited the crocodile, Lalele. No word, no thought, no hint could penetrate the innocence to speak of a monster ever-waiting. Marais' lifelong burden of pain, of compassion, of perception, all combine in the single poem. And somehow, too, the poem speaks of that devouring secret side – despite all gaiety, despite all charm – like Lalele, lying, always waiting, in the depths of Marais' own nature.

## INTRODUCTION

A good many years ago Professor J. S. Weiner, Oxford's celebrated anatomist, told me a story about Marais that better than any other I have ever heard probed the hidden darkness.

Weiner is a South African who grew up in a district of Pretoria called Sunnyside and many years later achieved world fame when, with Kenneth P. Oakley of the British Museum, he proved that the Piltdown skull, then presumed to be the remains of man's earliest ancestor, was a hoax. I had never met Weiner when, in Rome for a conference, he came to our apartment to spend an evening. And he startled me, for he had no more than found a chair before he asked why I had dedicated *African Genesis* to Marais.

There was little to explain. I replied that I felt science had neglected Marais, and that, while I was not a scientist, it had seemed the least I could do.

"I'm glad you did it," said Weiner. "I know I've always felt guilty about him." And he told his story.

When Weiner was a boy in Sunnyside, one of the most thrilling of events was the sight of Eugène Marais – dignified, dressed always in immaculate white – walking down towards the river in the evening. It was a signal to all the children along the street. They came piling out of yards and gardens and upstairs rooms to follow Marais to the river. There he'd find an old stump or a log to sit on, while they arranged themselves on the ground. And he would tell stories.

All of his acquaintances recall him as one of the most consummate story-tellers of his time and place, but the mightiest of witnesses were the children at his feet, listening with held breath to his stories of bush and *veld* and dusty roads where mambas slink. The dark would come on. He would rise and go



## INTRODUCTION

home, and the children, full of magic, would return to new worlds.

Marais had a room in a house just a few doors down the street. Weiner's sister, friendly with several girls who lived in the house, had come to know him, and one day asked Weiner to return a book to Marais' room. Clutching the book, consumed by the excited possibility of meeting the magic-maker alone, he went to the house, found the room, and knocked. There was no answer. He tried the door. It was unlocked. He entered cautiously. The room was dank with disorder. And there was a strange smell. He put down the book and fled.

Many years later – in 1940, years after Marais had died – Weiner was a medical student at St George's Hospital in London. In a pharmacological course the students were learning to identify a variety of pharmaceutical items. He was handed a sample of some drug with a very strange smell. Instantly he had a vivid recollection – a total recall – of a room somewhere. He struggled to identify the room, and knew it must be somewhere in South Africa. Then it came to him – it was Marais' room. And the drug was morphine.

Throughout Marais' life there were the long periods of intense study and outpourings of work when he was in command of his life at whatever inner cost. During such periods, he continued his observations of the termite and organised his revolutionary conclusions concerning the insect's social life. Also during such periods, he continued his observations of the baboon both in the wild and in captivity. He also planned and executed his experiments with the human subconscious and its hypersensitivity under hypnosis, and wrote (but did not quite finish) *The Soul of the Ape*.

And then there were the periods of breakdown, when friends

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spoke delicately of his 'bad health'. But always, he regained command of himself, and returned to his work. And so it is reasonable to surmise, I believe, that the plagiarisation of his work by a world-famous European author was a major factor in his last collapse.

\*

So far in this essay I have emphasised his work with baboons. Of equal importance, and at the farthest point removed on the animal spectrum, was his study of the termite, in his day called the 'white ant'. His scientific scheme was clearly defined: to investigate on the one hand the evolution of mind in that family of animals leading to man; and to study on the other hand the evolution of instinct in that branch leading to the most complex of insect societies.

And he came to a stunning conclusion.

Termitaries, as one sees them so frequently in Central and Southern Africa, are tall, compacted columns of earth sometimes twelve or fifteen feet high. Within lives the society, with its castes and its ranks, in countless number.

Marais concluded that all members of the colony and the termitary itself form what is essentially a single organism. The termitary itself is the body. The various castes in the society have the functions of the body's organs, with fungus gardens contributing the digestive tract, soldiers and workers acting as the cells of the blood stream, the queen the brain as well as the reproductive organs, and even the sexual flight executing the function of sperm and ova.

How they all communicate we do not know, but the 'soul' of the white ant – the *psyche*, we could say – is the property of the entire society.

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Marais' conclusion was new and radical. Intending to gather all of his studies into a book one day, he began in 1923 to publish a series of articles in Afrikaans newspapers and the widely circulated magazine *Die Huisgenoot*. While Afrikaans is all but a secret language to the world at large, Dutch and Flemings read it without difficulty. And Maurice Maeterlinck was a Fleming.

A definitive article was published by *Die Huisgenoot* in 1925. Maeterlinck, dramatist and poet, was then a reigning figure in continental literature. Early in his career he had published *The Life of the Bee*, a mixture of philosophy and natural history, but he was not a scientist. Maeterlinck's reputation rested solidly on a long line of poetic dramas, and in 1911, shortly after the production of *The Bluebird*, he was awarded the Nobel Prize for literature.

How a man of such stature could in later years commit such a crime, I do not know. But in 1926, the year after the appearance of Marais' article, Maurice Maeterlinck published in French a book that by the following year appeared in English and in several other languages. In that book, and without acknowledgement, Maeterlinck took half of Marais' lifework and published it as his own. *The Life of the White Ant* stands even today on many a library shelf, but the name on its cover is that of a shameless plagiarist.

In South Africa there was a furore. When Dr de Kok in London in 1935 was beginning her translation of Marais' *The Soul of the White Ant*, he wrote to her, recalling the episode:

You must understand that it was a theory which was not only new to science but which no man born of woman could have arrived at without a knowledge of all the facts on which it was based; and these Maeterlinck quite obviously did not possess. He even committed the *faux pas* of taking certain Latin scientific words invented by me to be current and generally accepted Latin terms.

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The publishers in South Africa started crying to high heaven and endeavoured to induce me to take legal action in Europe, a step for which I possessed neither the means nor the inclination.

The press in South Africa, however, quite valorously waved the cudgels in my behalf. The *Johannesburg Star* (the biggest English-speaking daily in South Africa) published plagiarised portions which left nothing to the imagination of readers.

The Afrikaans publishers of the original articles communicated the facts to one of our ambassadorial representatives in Europe, and suggested that Maeterlinck be approached.

Whether or not this was done, I have never ascertained. In any case, Maeterlinck, like other great ones on Olympus, maintained a mighty and dignified silence.

That a Nobel Prize winner and a literary figure of such renown could have stolen half the life-work of an obscure South African genius must leave one bewildered. How could he have done it? Yet Maeterlinck's guilt is clear. With the admirable cooperation of the Johannesburg newspaper to which Marais referred, I have obtained from the 1927 file copies of the original report.

Marais' was a star-struck, star-crossed life; and with the Maeterlinck episode the stars, I suggest, crossed once too often. The crocodile Lalele always lay waiting within the dark pools of his being. Despite his objective, even humorous, recollections of the crisis in letters of later years, I do not believe that he ever regained the scientific urgency that had commanded his earlier investigations.

He wrote several popular summations of his work. He published several excerpts from *The Soul of the Ape*, rewritten into Afrikaans. But I find no record of scientific accomplishment after

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1927. And we may recall that it was 1929 when young Weiner encountered the smell of morphine in Marais' room.

Morphine and misfortune beyond mortal endurance combined slowly, ever so slowly, to put out the light. It flared once more, however, undimmed and undaunted, in a letter to Dr de Kok written on 20 October 1935.

Earlier, he had written that after she finished the translation of his termite articles, they might consider what was to be done about his unfinished and unpublished *The Soul of the Ape*. "But," he confessed, "I write this in bed under the spur and inspiration of enduring pain," and spoke of his inability to find energy or enthusiasm for the work.

Now, however, he wrote the following:

You see that your kindly enthusiasm has infected me! The thought of reaching a bigger public intrigues me. You must know that a great deal of the work I did and my interpretations of the results will be new to science. No other worker in the field ever had the opportunities I had of studying primates under perfectly natural conditions. In other countries you are lucky if you catch a glimpse of the same troop twice in a day. I lived among a troop of wild baboons, and for three years I followed them on their daily excursions; slept among them; fed them night and morning; I learned to know each one individually; taught them to trust and to love me – and also to hate me so vehemently that my life was several times in danger. So uncertain was their affection that I had always to go armed – with a Mauser automatic under my left armpit, like an American gangster!

But I learned the innermost secrets of their lives. You will be surprised to learn of the dim and remote regions of the mind into which it led me. I think I discovered the real

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location in nature of the hypnotic condition in the lower animals and men. I have an entirely new explanation of the so-called subconscious mind, and the reason for its survival in man. I think that I can prove that Freud's entire conception is based on a fabric of fallacy.

No man can ever attain to anywhere near a true conception of the subconscious in man who does not know the primates under natural conditions.

Please don't worry about the health business. It was silly of me to write in the strain – just a period of gloom to which I am occasionally subject. Accept my thanks and salutations.

Sincerely yours,  
Eugène N. Marais

On the following 29 March, he killed himself.

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Back in 1895, when Eugène Marais' wife lay dying, Sigmund Freud, working in Vienna, made one of the supreme discoveries of modern science. Using hypnosis as a tool, he discovered in patients suffering from hysteria the influence of unconscious forces on our psychic processes. The existence of these forces has never since been seriously disputed.

Beneath all our actions, our decisions and dreams, our regrets, our hopes, the little lies that we tell each other and the big lies that we tell ourselves, works an engine of which we are unconscious: it reinforces or distorts our conscious, seemingly rational minds.

The human psyche has frequently been compared to an iceberg. And in the early days of the polar flight from Copenhagen to California, when planes were smaller and still flew low enough and slow enough for the passenger to see something, there was a

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wonderful sight along the way.

Crossing the Denmark Strait between Iceland and Greenland, you looked down on icebergs floating south. Each was a white jewel glittering in the low northern sun, and were you a passenger viewing the icy mountain from a ship's deck, this would be all that you would see. But from one's window in heaven you saw far more. Painted turquoise by the waters, the immense underwater mass of the iceberg spread all about beneath your eyes. Majestic the frosty mountain of ice might be; but hidden in mighty mystery was the force that supported it. And such is the unconscious mind.

While I believe it true that the reality and the significance of Freud's discovery have never encountered other than superficial dispute, the same cannot be said of its nature. We have argued to this day as to just what the unconscious consists of. And if we are to set our compass as we approach Marais' venture into the unknown, then we must acquire a little perspective: we must see it as a part of one of our century's most profound scientific controversies.

To begin with, we should understand that *The Soul of the Ape* is a poet's title for a scientific work. It is symbolic. I suggested earlier that where Marais used the word 'soul', we should more prosaically say 'psyche'.

But beyond that, his reference to the ape may prove disconcerting for some. The principal object of his study was the baboon; not an ape at all, but an overgrown and extraordinarily intelligent monkey. The difference is immaterial. What Marais was observing was the evolution of mental processes in higher primates, and what he concluded from the baboon could only carry greater force in the more highly developed chimpanzee or gorilla.

A second point of early reassurance should be demanded; that

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concerning the authenticity of the document. We have, of course, the original manuscript in Marais' handwriting, and for anyone familiar with his work and thought, the question would probably not arise. Nonetheless, it must be admitted that we know very little, at least at present, about the manuscript's history. Letters to his son suggest that it was written in 1922, and friends of the period recall that at that time he talked of little else.

But what happened to it? We know that in 1935, writing to his translator, he referred first to his inability to finish the work, and then to his excitement concerning it. When some months later Dr de Kok received the news of his death, she immediately wrote to his son inquiring about the manuscript.

On 12 May 1936, Eugène Marais Jr replied:

I also received your letter asking me for the field books and notes of my father. I am sorry, there are none. All that I got was about a third of a sack of papers – old letters, accounts, and your contract. There is no sign of a manuscript, and no notes.

Dr de Kok was unaware of the existence of the manuscript until I wrote to her in the spring of 1968, after receiving a copy myself from the Cape Town publishers. They in turn had been unaware of its existence a few months earlier, when they had invited me to write an introduction to a volume of Marais' minor pieces.

In the meantime, the manuscript was submitted to them by the son. Where had it been in the meantime, through all the years? Truly lost? Or hidden? And by whom, and why?

The mystery must remain a vexing question. But the reader has the right to ask; is it authentic? Is it possible that a document almost half a century old can today make a dynamic and original contribution to the evolutionary approach to human



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understanding, a scientific trend that has thrived only for the past few years?

By good fortune, we need not speculate. Solid evidence exists concerning the author and the approximate date of his work. In 1926, just before the ruin of the Maeterlinck episode, Marais published in English a paper called *Baboons, Hypnosis, and Insanity*, in a journal called *Psyche*, almost as obscure as himself. Several years ago my younger son excavated it in the library of Harvard University, and I have in my possession a photocopy.

In that article, Marais briefly summed up what one now recognises as the material and general conclusions of *The Soul of the Ape*.

He wrote:

Inevitably the conviction gathers force that the so-called 'subliminal soul' – the subconscious mentality – is none other than the old animal mentality which has been put out of action by the new mentality.

It was the essence of his discovery. Had the book been published in its own day, so scanty was our then understanding of evolution that it would have been ignored. Today, it will still be disputed by the slower minds within our academic community, but just as there is little question about the manuscript's authenticity, there is also little question but that our sciences of human understanding are only now beginning to catch up with Marais.

And so a larger question than authenticity looms before us: How can it be that this solitary man, pursuing his lonely work amid tortured thoughts, could have been quite so far ahead of his time?

Or to turn the question around: how can it be that in the first seven decades of the century after Charles Darwin's, world science

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– the core of modern civilisation – is only now getting around to certain probable facts of life so apparent to Eugène Marais?

It is a story as remarkable as that of Marais himself, and, so far as the welfare of man is concerned, even more tragic.

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Let us return to Freud.

The discovery of the role of the unconscious in the human psyche took place, as I have said, near the turn of the century. Sigmund Freud then pioneered the technique of psychoanalysis as a more practical substitute for hypnosis in exploring the hidden psychic channels of a disturbed patient, and bringing out into the area of consciousness the guilt and repressed memories which had contributed to the disturbance.

But the Viennese master became enamoured with the sexual impulse as the central force in the human unconscious. His preoccupation with sexuality brought him into furious conflict with the prim intellectual leftovers of the Victorian age.

It also brought him into conflict with his two most eminent colleagues and disciples.

Alfred Adler, unable to stomach the sexual monopoly, saw in the drive for power and dominance a more profound ingredient in the unconscious forces of our behaviour. Present research into animal behaviour may confirm Adler's position, and bring about a resurgence of his reputation.

Carl Jung turned from the overheated corridors of sex to the cooler rooms of myth and religion for fresh explanations.

But Freud continued to dominate the main stage of psychic investigation. To him, the sexual drives and frustrations of parents and children dominated the formative struggle for the adult unconscious mind. He gave us the Oedipus complex as a universal

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attribute of man, inherited from primal days when within the confines of the family the sexual desire of the son for his mother encounters the implacable hostility of the father.

Freud's errors were many, and in his time perhaps unavoidable. He saw man's primal social unit as the family, as it unquestionably was not. He saw the sexual drive as dominating the actions of all higher animals, which just as unquestionably it does not. He lived and worked in a special corner of the bourgeois western world at a time when sexual repression was at its most severe; and from this passing, parochial base he extended timeless generalisations to all mankind. And besides all this, he worked exclusively with the sick, drawing from them improbable conclusions concerning the healthy.

We may be grateful to Freud that he presented us with the concept of the unconscious mind. And we may be grateful also that it was largely his sensational preoccupation that in the end would crush the sexual taboos of his time. Yet we may note in passing that today, when sexual repression is vanishing at such a startling pace, we see no comparable reduction of mental illness.

This was the 'fabric of fallacy' to which Marais referred in his letter to his translator. He did not live to witness the spread of a new fabric of fallacy which would challenge the old.

Sigmund Freud published *Beyond the Pleasure Principle* in 1920, two years before Marais wrote *The Soul of the Ape*. In this work Freud went beyond anything earlier and postulated the presence in all organisms, including man, of a life force which he called Eros, its most obvious manifestation being the sexual drive, and a death wish. We – man, snail, baboon, grizzly bear – come into this world with a will to live and a wish to die. When the wish overcomes the will, we have had it.

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With this far-out excursion into metaphysics, Freud in time would shake off all but his most truly devoted adherents. And the concept of the death wish, impossible for any biologist to accept, may for all we know have opened the door for equally implausible concepts put forward by younger psychologists. But we should make the gravest of errors if we dismissed Freud's theory simply because it is preposterous.

From first to last throughout all his long career, Freud granted the force of instinct in the human psyche. With his newest theory he reasserted his belief in the unity of all living things, and he still saw man as a portion of the natural world. Then in 1924 the University of Chicago's John B. Watson published his *Behaviorism*. Watson believed in neither.

It is an accident of history that Marais recorded his thoughts concerning the human psyche at that moment, in 1922, when psychology's arrow was over the mid-Atlantic, halfway in its flight from Vienna to Chicago. It left behind a fractured, doubting, bitterly divided remnant of twentieth century psychology's pioneering band, to fall into the hands of a man who had not a doubt in a single bone of his head.

Psychology's pioneers had been human, sensitive, courageous, wild in their wonderings, magnificent in their frailties. They had been artists. Psychology's inheritor was a one-man advance agent for the computer age.

For the delicate intricacies of Viennese thought, Watson substituted a meat-hook, borrowed, we may assume, from a local South Side stockyard. His breath-taking confidence rivalled that of a Karl Marx issuing his *Manifesto*. Watson's most famous quotation runs as follows:

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Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in, and I'll guarantee to take any one at random and train him to become any type of specialist I might select – doctor, lawyer, merchant-chief, yes, even beggar – man and thief, regardless of his talents, penchants, tendencies, abilities, vocations and race of his ancestors.

In other words, man is born a perfect cipher, bringing nothing into this world but malleability under the pressure of environment. He is invariant, and we need not concern ourselves with individual differences, since every human baby born has precisely the same potential as every other baby born. Talent, intelligence, capacity for leadership or the perfect crime – all are products of learning and experience within the lifetime of the individual. If as adults we vary, it is only because of the varying environmental experiences that have come our way, some adding to, some subtracting from, the uniform human potential.

This was Watson's behaviourism. He drew heavily on the work of the famous Russian physiologist Ivan Pavlov, who initiated systematic study of the conditioned reflex. Behaviourism was the perfect psychology for a materialist society.

There is an irony in our supposition that the United States and the Soviet Union live in worlds apart as well as opposed. Both of our societies are founded on materialism – the dialectic materialism of communism, the utopian materialism of capitalism. We must both believe in the omnipotence of the material environment. If the Soviets lose that faith, then they must cease to believe that the environment of a perfect socialist society will produce a new and perfect man. If we lose that faith, then the United States of America must cease to believe that in a society of perfect, universal affluence, all men will be good and true.

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The American dream and the Russian dream are of course constructed of nonsense, bearing minimum relation to human reality. And we may speculate that the dream has contributed its incisive share to the deepening and, seemingly insoluble, troubles which both super-powers are experiencing today. Most demonstrable is the fact that behaviourism – or environmentalism – dominates the political, philosophical, and scientific thought of America and the Soviet Union in equal measure, and more successfully than in any other countries in the contemporary world.

With very slight modifications in the direction of common sense, behaviourism in the United States passed from Watson at Chicago to Clark Hull at Yale, and to B. F. Skinner at Harvard. No figure in American psychology today rivals Skinner's authority. All over the American academic map, there are maverick scientists attacking the postulate of man the born goose-egg, man the uniform replaceable part, man the strangest being in all the animate world, containing no ingredients other than those that his environment has placed in him.

Yet the rule of the conditioned reflex remains unbroken. (Today we speak of 'reinforcement theory'.) One of the most influential of American anthropologists, Ashley Montagu, could recently write, without qualification, that

...man is man because he has no instincts, because everything he is and has become he has learned to be from other human beings.

It is a fairy-tale world that was born two years after the writing of *The Soul of the Ape*. It is a fabric of fallacy far more rigid, far more impenetrable, far more wishfully, sentimentally persuasive than the Freudian postulates that Marais deplored. It has become, indeed, a disease confined not at all to the laboratories and

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text-books of psychologists. Its dogma of human uniqueness and human omnipotence has spread at epidemic pace to infect, to a considerable or great degree, all the sciences of human understanding, and much of lay thought as well. If the educated world is in trouble, then the wonder is small indeed. This has been its education.

We have here, then, the broad answer to my original question: What has happened to the sciences in the first seven decades of the century after Darwin's?

The answer is as simple as it is brutal: we have lost our way. And so we may find also the answer to the question as to how a single man in his lonely work could have been quite so far ahead of his time. Marais did not lose his.

One glimpses few omens of fortune in Marais' obscure life. And yet luck came his way – once. When circumstances combined, just after the turn of the century, to place him in the neighbourhood of a huge troop of wild baboons, fortune cloaked him as it had no other man. Even the Boer War, otherwise a force that so darkened his life, brightened the fortune.

In farming country, baboons, because of their persistent looting of crops, are regarded as vermin, and a bounty is placed on their scalps. Nature has provided us with no more accomplished bandit, other than man himself.

One must assume that the war between man and baboon has prevailed since the first black farmers, a thousand or more years ago, invaded baboon country. The baboon, no simpleton, has come to the natural conclusion that man is a poor companion. But, as I have briefly suggested, when Marais arrived in the Waterberg, for four years his baboons had heard no gun fired. Farms had been burned, families taken off to concentration camps, and the farmers

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themselves had been with the Boer commandos.

While Marais continued his studies, the men slowly came drifting back from prison camps to restore their demolished farms. But they had been disarmed. Eventually, of course, they regained guns and ammunition. In the meantime, however, peace still prevailed between baboons and men.

In Marais' day, only the most peculiar of circumstances could have made his observations possible. As he himself suggests, the condition was not quite natural. His troop was larger than any studied recently in the limited areas of African game reserves, and its size was probably due to isolation and low mortality over so many years. The ruling oligarchy of dominant males was necessarily larger. Also, there was a higher ratio of males to females than is normal; it is the irrepressible male who suffers higher mortality at the hands of man.

I do not believe, however, that any of these slight aberrations affects his conclusions concerning the psyche of the baboon. His was the luck to have available before him, year after year, the repeated testaments of daily life in a higher primate. Freud, with lesser luck, had only theory.

Eugène Marais, the damned and the saved, with all his complexities of inner pain and overwhelming insight – so difficult to explain in terms of the conditioned reflex or human uniformity – could gain from long, direct experience materials for his basic conclusion that the human psyche, like the human body, has evolved from the world of lesser animals.

There was still another element of luck in Marais' isolation: his protection from the ups and downs of scientific thought. His faith in Darwin was undiluted. In all charity to Freud – and, indeed, to Watson, though I grant it grudgingly – it must be recorded that in



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their day, the theory of evolution was in bad shape.

From 1859, when *Origin of Species* was published, Darwin's theory remained dominant in all the natural sciences until nearly the turn of the century. But laboratory gremlins were eroding its validity. Natural selection did not seem to work in the fashion which Darwin had anticipated. Many rejected the theory entirely. Others turned to Lamarck and the inheritance of acquired characteristics. Marais himself was tempted by Lamarck, as letters to his son make evident, but the temptation had no influence on his own theories and does not enter into *The Soul of the Ape*.

It was a time, however, of biological trouble from which Marais was fairly well insulated. Not until 1930, when the work of an inspired trio of geneticists – Sir Ronald Fisher, John Haldane, and Sewall Wright – founded the new science of population genetics, was Darwin's natural selection placed on an inarguable basis. Today we speak of 'synthetic' evolution – as first synthesised by Sir Julian Huxley – or 'neo-Darwinism' to describe evolution as biologists now understand it.

The wheel came around, in other words, to the number which Marais had originally chosen. But it must be admitted that for those in the midst of the pressure of scientific fashion, evolution did not offer a firm structure with which to deny the validity of false hypotheses. (For those who still cling to them, society can offer little but the benevolence of an old scientists' home.)

But there was a far more practical lack than sound theory in the early decades of our century, and that was our total ignorance of the behaviour of higher animals in a state of nature.

Until 1961, when Sherwood Washburn and Irven DeVore published their paper *The Social Life of Baboons*, with a single exception science possessed no reliable information whatsoever

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concerning the life of our nearest evolutionary relative, the primate, in a natural state. The exception was the work of the great American psychologist Clarence Carpenter, who, some thirty years after Marais, entered a Panama rain forest to conduct a systematic study of the howling monkey. Through the 1930s he followed on with similar studies of the gibbon and the rhesus monkey. They were ignored, just as I am sure that Marais' study would have been ignored had it been published in its time.

Tides of fallacy were running too strong to be intercepted by a few rocky facts. We had not in this lengthy period entirely ignored animal behaviour, but we had confined our observations to captive or domesticated animals in laboratories and zoos.

One of the most ill-starred events of our scientific century took place in 1932 when Sir Solly Zuckerman – another South African removed to Britain – published his *Social Life of Apes and Monkeys*. The book was a thorough, convincing study of the behaviour of baboons.

But the baboons were in the London zoo. That they were obsessed with sex lent support to the Freudian hypothesis. That in Zuckerman's opinion this sexual obsession provided the basic motive for primate society – a motive so different from human society, in which the temptations of fornication are a socially disruptive force – lent support to the notion that 'people are different'; which in the coming years would be the bread and meat of a sociology and an anthropology ignoring any evolutionary influence on man.

Until 1960, the book stood as a keystone in the tightly constructed arch of contemporary fallacy.

Then in 1961 began the new attack of evolutionary thought and techniques on academic orthodoxy. That was the year

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Washburn and DeVore published their study of baboons in the wild. Even their single study demonstrated that the behaviour of primates in captivity bears little relation to their behaviour in a natural setting. The former is a frustrated being; the latter a busy fellow with much to absorb his energies besides sex.

Then through the 1960s came a regiment of scientists observing all manner of primates in a state of nature. All confirmed the complexity of primate life recorded by Marais in 1922. All proved that sexual obsession in the primate is a myth. Zuckerman's book stands today totally discredited.

But social scientists beyond counting remain still uninfluenced even today by the revolution taking place in the natural sciences.

Biology's revolution began in an inconspicuous way in 1937, the year after Marais died. It was announced by a scientific paper called *The Companion in the Bird's World* by Konrad Lorenz, an Austrian scientist who for years had been observing a variety of birds and mammals at his home on a wild stretch of the Danube shore. It presented a series of highly original hypotheses concerning the relation of instinct to behaviour in animal life. And with that paper, the science that did not exist during Marais' lifetime came into being.

Konrad Lorenz is known today as the father of ethology, the rapidly exploding science concerned with the biology of behaviour. Carpenter's early studies indeed preceded Lorenz's, but it was the impact and continued activity of the Austrian naturalist that brought ethology into being. Closely allied with him in the early years was Nikolaas Tinbergen, who transferred his activities from the continent to Oxford, where he established a pioneering department of animal behaviour. In 1951 Tinbergen's *Study of Instinct* established ethology as a scientific discipline that

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could be ignored not even by its angriest opponents.

Such opponents existed in plenty. Although the earlier studies by the new ethologists confined themselves strictly to animals, the essential concern with evolution implied that sooner or later we should be involved with the behaviour of men. Still, however, the quarrels remained within the sciences, and not, indeed, until 1966, when by singular fortune the English translation of Konrad Lorenz's *On Aggression* and my own *The Territorial Imperative* appeared almost simultaneously, did the debates of the scientists reach out to a large, informed, and profoundly concerned public.

Are there truths about man which have been hidden from our eyes and shielded from the education of our children? Marais believed so. If Konrad Lorenz is the father of biology's new challenge, then Eugène Marais was its prophet. But before we turn our attention to his book lying before us, we must inspect one relevant scientific development which Marais did not and could not anticipate.

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It is a final irony in his story – and the story of our times – that in 1922, when he was writing *The Soul of the Ape* in Pretoria, a young Australian anatomist named Raymond Dart was arriving at the medical school in Johannesburg, only thirty-odd miles away. And two years later, Dart discovered *Australopithecus africanus*.

Any understanding of the evolutionary nature of man must rest on two sources of information: Firstly, we must know the world of the animal, gaining insight from it with which to view our own; in this Marais pioneered.

But also, we must know as precisely as possible the evolutionary course by which, from the condition of the lower animals, there arose that most remarkable of animals, man. This

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Dart pioneered. But whereas Marais' work remained unknown, Dart's became the focus of a controversy which is being resolved only in the present day.

The problem of human evolution may be stated simply. When Raymond Dart discovered the fossil remains of a being who lived on the African savannah over a million years ago, who was a hunter following a carnivorous, predatory way of life, and who resembled man in every way except in brain size (about a third that of ours), he upset almost every preconception – philosophical, religious, biological – concerning what the human ancestor should be like.

Since the time of Darwin, we had assumed that our primal ancestors must have resembled the shy, inoffensive, vegetarian ape of the forest. I know of only one thinker, the British psychologist Carveth Read, who departed from that universal assumption. In 1920, he published his conclusion that our pre-human ancestor should be called *Lycopithecus*, for his way of life must have been similar to that of the wolf. Nobody paid any attention to Read.

Then four years later, Dart found the creature.

We speak of such predecessors as hominids, a primate line evolving independently of the lines of the ape and the monkey. When Dart claimed that his *australopithecines* were true hominids, that we lived in bands systematically and effectively killing for a living, and that we used tools and weapons long before the development of the enlarged human brain, it all combined to produce a bad case of scientific indigestion.

Today, at last, his case is all but closed. In late 1967 Alfred Romer, the world's foremost palaeontologist, wrote:

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With one or two exceptions, all competent investigators in this field now agree that the *australopithecines* of the early Pleistocene are actual human ancestors.

The question before us today concerns not the legitimacy of our carnivorous ancestry, but its antiquity. And it is the work of that Christopher Columbus of human evolution, Kenya's Louis Leakey, that we shall probably find the answer.

The 1960s, which have witnessed the explosion of discoveries in the area of animal behaviour, have witnessed a simultaneous explosion in our knowledge of the human past. I shall not detail the rapid advance, but merely describe the most recent of discoveries, announced only a few weeks before the writing of these pages.

In May 1968, Leakey delivered a shock that will probably once again put science into a state of trauma. At a site near Fort Ternan, in East Africa, he had been studying a creature which Leakey calls *Kenyapithecus*, and who was probably ancestor of the *australopithecines*. There, in the midst of a fossilised bone pile to rival those of their descendants, Leakey has found stones used to smash up antelope bones in order to extract the marrow.

By modern techniques of radiogenic dating, the time may be reliably fixed at between twelve and fourteen million years ago. Dart's *australopithecines* were but yesterday.

The antiquity of the hominid hunting way – aside from all its implications in terms of human behaviour – separates our evolutionary track from that of the vegetarian ape or monkey through a span of time quite beyond our powers of imagination.

And so in reading *The Soul of the Ape* we must avoid at all costs the easy pitfall of equating the amiable nature of the chimpanzee – or, indeed, the aggressive behaviour of the baboon – with facets

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of human behaviour. We are all the end-products of quite varying evolutionary paths, and equally varying conditions of survival. But we are of the same primate family. And – all-importantly – we are all of us products of the same evolutionary process.

Eugène Marais could not know what the science of the future would reveal concerning the distinctiveness of human evolution, mediated by that long-surviving hominid, the wolf-ape. Dart's early discovery was too lost in controversy, and too late in Marais' declining life, to have influenced the course of his thought.

It is our good fortune, as well as his, that his concern with psychic evolution was so profound as to be applicable to us all – the harmless ape, the belligerent baboon, and killer man.

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His was the first human mind to penetrate the secrets of the wonderful world of the animal, and to apprehend the legitimate mysteries of the wonderful world of man.

I wrote these words in *African Genesis*, and have now neither reason to modify them nor inspiration to improve them. Marais was not the first thinker to see in Darwin's theory implications concerning the continuity of our evolution in factors other than body.

In *Les Sociétés Animales*, Alfred Espinas attempted to demonstrate the gradual transition from animal to human societies, but his ideas were dismissed to oblivion by the master sociologist Emile Durkheim.

Carveth Read, as we have seen, took a hard look at the history of human ferocity and forecast with accuracy the wolf-like nature of the human ancestor.

None before Marais, however, had the living materials of nature to guide him. And none before Marais had the audacity to

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peer into the inner recesses of the primate mind, and to draw from his observations conclusions concerning the continuity of evolution of the human mind itself.

The bewilderment of man is the bewilderment of all higher primates. Mind was the essential blessing bestowed by an accident of mutation on the earliest of Eocene primates perhaps sixty million years ago.

We differed, otherwise, little from rodents. But since at this date we were all of us arboreal, we developed hands instead of paws, with fingernails to protect sensitive finger-pads so valuable to a life in the trees. And we had the social inclination; not since the most primitive of lemurs do we find a primate species of solitary disposition.

But the brain was our hall-mark. If the primate was to succeed as a natural experiment, then he must succeed by his wits.

Thus by whatever evolutionary track we proceeded – the ape and most monkeys in their forest setting living off forest foods; the baboon and a few other terrestrial monkeys, like the patas and the vervet, living an all-fours life largely in the open and eating a far greater variety of foods; or the advancing hominid with his bipedal posture, his hands freed for the use of weapons and tools, his diet more and more dependent on the fruit of his kill – in all of them, we find the pressure of natural selection favouring the better brain, and the better use of what brains we had.

The psychic dilemmas of the hominid and baboon – both of us citizens of the dangerous savannah – can with little likelihood have included qualitative differences. We both in our most ancient origins had been largely guided by the confidence of instinct.

Learning, we must recognise, plays a part in all animal life: the amoeba can 'learn'. Such learning, however, for the most part



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reinforces instinct and adapts its inherited directives to circumstances of time and place; it is still *instinct* that guides.

But in the progressive primate, and in many predators as well, such ancient wisdom fixed in the genes was not quite good enough. And so there developed the conflict, as Marais saw it, between the 'old' mind – the inherited animal mind – and the 'new' mind, which is developed in the individual by experience.

The new mind would make possible the human achievement of adaptation to almost every environmental condition the earth has to offer. If genetic wisdom could offer us no information as to how to meet some new state of affairs, then experience and learning would succeed.

But, as Marais sets forth, the baboon, like man, has so succeeded. He has accepted all manner of climates, of conditions of survival, of enemies, of existence on lush plains or forbidding deserts, in mountain fastness or tempting valley. Like man, the baboon thrives on anything that passes for food.

Marais knew of baboons that killed lambs to gain the milk curd from their stomachs. He knew of none that ate meat.

But in recent years we have found areas in East Africa where baboons have crossed the rubicon that the hominid once crossed, and prey systematically on the gazelles' newborn fawns.

The baboon has faced everything, including the implacable animosity of man. Yet he survives as the second most successful of primates, surpassed only by ourselves.

I suspect that it was Marais' attention to traditions of behaviour varying from troop to troop that presented him with his first hard evidence for the significance of the new mind in baboon life. This forms a major scientific contribution in *The Soul of the Ape*. Even in studies of most recent years, we have been far

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too preoccupied with forms of behaviour which are common to an entire species – what we call ‘species-specific’ – and therefore probably under genetic control.

That we find in man such varying traditions of behaviour in different peoples has been a principal argument on the part of those who see the human species as differing radically from subhuman animals. Marais nullifies the argument with his careful documentation of varying traditions in baboon life.

A chief function of any society, human or subhuman, is education. Sir Arthur Keith once described education as the first industry of any species; should the industry fail, the species will become extinct.

Few higher primates centre their social life on the family. And so, with their slow-growing young, education is mostly accomplished through the traditions of the entire troop. The young learn from their elders what the elders when young learned from theirs; and so, whatever the wisdom gained from experience the troop may possess, it is handed down from generation to generation.

Man has the immense advantage of the oral or written word, but the process is the same.

I cannot believe that Marais would have been surprised that Japanese scientists, in their superb studies of the Japanese monkey, have found among ten troops three in which high-ranking adult males invariably take charge of all year-old infants when mothers give birth to new babies; three in which the tradition is sporadic; and four in which it never occurs at all.

In terms of the natural selection of groups, the first three troops have developed a tradition which through reduction of infant mortality is of superior survival value. And a thousand years

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from now, if there is still a Japan with Japanese monkeys, what is today a social invention may have become a tradition common to the species.

Obsolete information, cluttering the minds of those who speak for human uniqueness, still tends to inform us that there is a sharp line between animal and man because the animal is guided by rigid instinct, while man is guided by flexible rational powers.

Both propositions are false.

Our developing knowledge of human evolution must tell us that so gradual was our coming, no clear moment could ever have occurred when before it we were animals and after it, men. And any honest appraisal of the human being – any ruthless inspection of one's own inner self – must inform us that we are guided again and again by impulses lying deeper and more powerful than our rational determinations.

Man has his instincts. And so it was that Marais exposed the other side of the psychic coin: the baboon, a primate of quite undistinguished brain as compared with the chimpanzee, must still gain most of his directives for living from his power to learn.

*Human Aggression*, a recent book by the London psychoanalyst Anthony Storr, presents better than any other published thus far the evidence for man's hidden animal nature. And *The Soul of the Ape*, though written so long ago, presents better than any book published thus far the dawning humanity in the psyche of the higher primate.

One cannot be so innocent as to presume that the two books together will forever remove the mythical line between animal and man; but one may modestly hope to see some damage done.

\*

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Marais' observation of the role of learning and tradition and consequent varying behaviour in the life of the baboon is thus a major advance in our new evolutionary literature. His central contribution, however, is of course the book's central hypothesis: the evolutionary origins of the unconscious in man's mind. For this contribution we have little precedent.

If one has groped through the existing scientific literature devoted to instinct and learning, then one must grasp with relief at Marais' invention of two simple phrases, *phyletic memory* and *causal memory*.

By this I do not imply that they can be swallowed without a bit of chewing.

But 'phyletic' is not too difficult a word. In biology we refer to phylogeny when we speak of the history of a species and its antecedent species, as we speak of ontogeny to describe the history of the individual. A phyletic memory, then, is one whose cause we are unaware of, since the memory itself is carried in our genetic make-up as a result of evolutionary crises long ages past.

Let us think, for example, of some ancestral baboon species recently emerged from the life of the forest. Apes and arboreal monkeys have, as a rule, loose social organisations. But on the savannah the baboon met lethal dangers rare in the forest. Even the small-brained hominid himself, to judge by the fossil remains of his kitchen-middens, had a hearty appetite for baboon flesh. Now, the baboon is a powerful animal, but even so his only defence on the savannah lay in concerted social action. Those troops that kept to their undisciplined ways met disaster. Only those capable of leadership, willingness to obey, and cooperative defence could survive to leave descendants.

The hamadryas is an aberrant baboon species with its own

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desert ways. But in all other species, throughout the passing millennia, the basic baboon society took form. There is a group of powerful males who never quarrel, who enforce order in the troop, and who assume the most dangerous responsibilities in the troop's defence. And there are all the other members who submit to authority and do their part. The leaders may be three in a troop of eighty and could be overwhelmed by revolution tomorrow. But it will not happen. Phyletic memory inhibits the impulses of the many with its genetic wisdom derived from ancient happenings, just as it commands the actions of the few to go forth at all risk, and face the cheetah.

Phyletic memory forms the unconscious portion of the baboon psyche. Causal memory is the conscious portion, the learned portion, the portion springing from experiences within the baboon's lifetime. As Marais saw them, the two exist side by side, or, more accurately, the old beneath the new. And the story of psychic evolution has been the gradual ascendancy of causal memory over the phyletic. Yet never does the one wholly succeed in displacing the other.

Turning to Marais' investigations of the phyletic memory in man, the startled reader may be wary of conclusions drawn from hypnosis. But we must recall that Freud too used hypnosis as a technique in his discovery of the unconscious mind.

Sir Julian Huxley, in *Essays of a Humanist*, writes:

One of the darker chapters in the history of science and medicine is the way in which pioneer hypnotists were attacked and often hounded out of the medical profession. Even today, there is still a great deal to be discovered in this strange and exciting subject.

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Just how strange it may be is illustrated by an experiment at Pennsylvania State University reported as recently as 1968. A group of college students were hypnotised and told that they were nine years old. Each was then instructed to write a letter to a friend. The letters were then mixed with similar letters written by actual nine-year-old children, and all were presented to a faculty committee who knew nothing of the experiment.

The letters by the hypnotised college students and those of the real nine-year-olds could not be distinguished on any basis – whether style, content, or handwriting.

Contemporary theories of learning tumble in the face of such an experiment; and it is not impossible that hypnosis was placed beyond the scientific pale because it asked more questions than our sciences could answer. A similar fate befell research into extrasensory perception.

But in Marais' day hypnotism was still regarded as a valuable and legitimate tool. If in our day it is very nearly taboo, then we may comfort our suspicions by reflecting that, strange though hypnotism may be, the ways of science can be stranger.

Phyletic memory is Marais' term for what we would call 'instinct'. Yet the word instinct is so loose, so difficult to explain or define, so surrounded by controversy, and so subject to manipulation by those who would justify the worst or the best in human behaviour as instinctive, that many authorities refuse to use it.

Marais, it seems to me, has provided us with a superior term for a quality in life which, if we cannot explain, we still cannot deny. With his *phyletic memory* and his *causal memory*, he described two psychic forces cleanly and with sufficient definition to permit his investigation of the evolutionary origins of the

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conscious and unconscious minds.

Marais, as I have indicated, saw phyletic and causal memory as existing apart, with the latter increasingly dominant over the former. They may, however, combine. Ethology is aware today of many forms of behaviour which, while having a genetic basis, require learning to become activated.

Such is the behaviour of a robin defending his acre, or a man defending his home. Both have ancient phyletic memories that possession of an exclusive territory forwards the survival of adult and offspring. But causal memory must help robin or man in gaining a territory, knowing its boundaries, its resources, and the character of potential intruders, or the pattern of behaviour will be incomplete.

Causal and phyletic memory may form an alliance in another fashion, and perhaps it might be useful in our own thinking to retain a distinction between the *unconscious* and the *subconscious*.

The truly phyletic memory would then be the true unconscious, something beyond any recollection, since its causes lie buried perhaps tens of millions of years before the birth of the individual.

But in deference to the psychologists of Freud's generation as well as to our own commonplace experience and observation, we must recognise the existence of a murky half-world, the subconscious. Here repressed causal memories sink, to join with rising phyletic memories to form powerful unions distorting or vetoing the rational procedures of the causal mind.

But there is a difference from the true unconscious. These unremembered memories, being causal, have their sources in the lifetime of the individual. And so, whether by psychoanalysis or other tools, they may be probed and, if we are lucky, brought back into the realm of rational disposition.

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Let us take an example: Konrad Lorenz has demonstrated that no organism lacking aggressiveness has the probability of living to maturity and reproducing itself. Anthony Storrs has applied the Lorenz principle to human life.

We may therefore regard aggression as one of the most powerful of phyletic memories.

But aggression in human life may take many forms, from the painting of masterpieces to competing in business to the killing of strangers.

Now let us assume that we live in a society that praises selflessness, condemns aggressiveness, provides few outlets for its healthy display, and instils in us a sense of guilt concerning temptations and experiences which are in themselves quite normal.

May not such causal memories – perhaps of the excitement of violent action acquired in early childhood – be forced by guilt into our subconscious, there to form union with phyletic command and to lurk in our depths, like Lalele?

Might not such a social attitude, judged in the terms of a future psychology, accomplish the precise opposite of its objectives?

There are few areas of human life, few moments of human decision, to which *The Soul of the Ape* does not bring a measure of clarification. I have said that the bewilderment of man is the bewilderment of the animal; and I firmly believe it is so.

We are caught, all of us, at our differing levels of psychic evolution between the opportunities of the new mind and the commands of the old. And perhaps in the end it will be recorded that we were all tragic species playing out the successive charades of a natural experiment called ‘the primate’, in which the last terrible writing on the wall was inscribed by the dainty hand of some forgotten lemur in the long-lost Eocene.



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It need not, however, be true.

Man today has reached a bewilderment that no ape, no monkey could envy.

But we have something that, so far as we know, they have not: self-awareness. We have the power to investigate ourselves. And however foolishly we may use that power, denying by our folly even our rationality, still the power exists.

The evolutionist, looking wryly about at a world that sweet reason has produced, may well conclude that the efforts of the individual must in the end prove futile: that man makes no sense.

Yet while he could be right, he would also be wrong. Man may make no sense, but evolution does. And if through our self-awareness we can come to an understanding of ourselves and our place in nature, then through a simple faith in something far larger than ourselves we may find a hope which we so singularly lack today.

Perhaps a sense of individual futility was too strong in Eugène Marais. Perhaps causal memories of misfortune made union in his own subconscious with the phyletic memory of the monster Lalele. Perhaps his tragic sense as a poet overcame the creative optimism of the scientist. Perhaps he was a man born too soon, and knew it.

Or perhaps it was nothing at all so large, so profound, but that in an hour of inspiration he returned to his labours on *The Soul of the Ape* and found, as the weary months slogged by, that he was not too soon, but too late. And so he blew himself to pieces with a shotgun on a farm near Pretoria.

We shall never know.

Nor does it matter that much. His manuscript is rough. It lacks a proper conclusion. In certain areas of his argument, one longs for further demonstrations, and for those more detailed



*An ex libris plate from a book owned by Marais*

observations which he could undoubtedly have supplied.

Had Marais, in the southern autumn of 1936, been able to finish his manuscript, polish the rough parts, to rethink a few conclusions, add further ideas that had come to him in recent years, then beyond all question, he would have left us more than we shall find in the following pages.

But he left us enough. He gave us certain imperishable thoughts still new and useful in a time of human crisis. And he gave us something else: the memory of his own life, in itself an imperishable testament to the awesome wonders and the legitimate mysteries of the being called man.





# THE SOUL OF THE APE





## Means and Methods of Research

SHORTLY AFTER THE WAR, I had the opportunity of living for three years in very close proximity to a troop of wild chacma baboons (*Papio ursinus ursinus*). During that time a register was made of all the adults – or nearly all – and it was thus possible to study their behaviour under very favourable conditions. During most of this time I had the invaluable assistance of a young friend and countryman who, under the most disadvantageous circumstances, had attained a remarkable knowledge of the higher African mammals and their comparative anatomy. An untimely death unfortunately cut short his work.

The conditions under which this investigation was made were, in some respects, ideal and are hardly likely to recur in South Africa.

We were living in a high, narrow valley between two parallel ranges of the central mountains of the Waterberg in the Transvaal: a stream flowed down one side of this valley and found an outlet through a gorge in the southern range. The floor was strewn with piled-up fragments of conglomerate rock which, in the course of ages, had been dislodged from the hills to shape the faces of the precipitous walls of the gorge. Both floor and walls were thickly overgrown by big timber-trees and tree-ferns. Plants grew and thrived wherever the smallest root-hold had been gained either in the soil or in the living rock. Along this gorge the stream had worn for itself a very much impeded channel to the low country.

On the right side, about a hundred feet from the floor of the gorge, the face of the cliff was split by a huge level-floor cavity.

Just below this cave, against the wall of the precipice, grew a giant wild fig tree, its roots widespread over the face of the rock and its enormous branches and dense foliage completely sheltering the mouth. A slope of loose rock, which was comparatively easy to climb, stretched down from one end of the cave entrance to the floor of the gorge.

The cavity formed the sleeping place of a troop of baboons. The circumstances which rendered these clever and extremely nervous animals indifferent to the presence of their arch-foe, man, were due to a long succession of events.

The Boer War had left the area in unpeopled solitude for a number of years and, when eventually the families returned, the men were for several more years without rifles or ammunition. The baboons were very quick to realise the helplessness of their neighbours, and they took full advantage of it. The orchards, gardens and grain lands were raided with incredible fearlessness.

On our arrival in the valley and during the construction of our huts near the entrance to the gorge, the babies who could walk and all the youngsters of the troop showed an insatiable and often reckless curiosity, much to the alarm and disapproval of their elders. Perched on stones within thirty yards of us, they would follow with the closest attention all our movements.

These quiet times occasionally gave place to rollicking games, one of which was to approach us in a rush up to the sticking point of their courage, and from that comparatively safe distance they would indulge in the customary baboon face-pulling and threatening grimaces, or else assume an attitude of conciliation. (This attitude is referred to at length in the chapter dealing with sexual abnormality.)

The older individuals were at first very wary of approaching

us. They would remain on the slopes of the hillside, nervously calling to and 'warning' the more intrepid youngsters, and occasionally a big male would wake the echoes of the mountains with his tremendous voice.

We experienced a great deal of difficulty in overcoming this distrust among the adults. It was my colleague who by infinite tact and patience eventually gained their confidence to such an extent that they assembled daily for several months in the immediate vicinity of the huts, where they were fed on 'mealies'. We were thus able, in time, to approach within a few yards of them, and it was then apparent that it was we, rather than the chacmas, who needed to be distrustful and continually on guard. We were never actually attacked, although dangerous threats were a daily occurrence, and of such a nature that in the beginning one of us had always to be armed.

But a better understanding was gradually established as we got to know each other. Eventually the baboons allowed us to climb up the slope of their sleeping place in the evening and very early morning, and watch them from the roots and branches of the big fig tree.

They would never, however, permit us to set foot on the floor of the cave itself. Any such attempt was at once, even in the night, countered by a threatening advance on the part of the big males, who clearly 'meant business'.

We kept a number of tame adults and babies, some in captivity and some at liberty, at a farmhouse below the mountains. We also had in captivity at different times wild adults that had been wounded by scalp-hunters (The Transvaal Government paid a bounty of 5s on every baboon scalp) and captured alive.

The behaviour of these captive baboons was studied for a



period not exceeding three years.

Ideal as conditions were in one respect, we still laboured under disadvantages that were not without effect on our work. The greatest of these was – it appeared later – the want of time.

As the neighbouring farmers regained possession of rifles and ammunition, observation of the troop became more and more difficult and all too soon was rendered quite impossible.

Another serious disadvantage was our isolation: we had no libraries, and no means of checking what work had already been accomplished in this field.

In this connection I would like to mention our own attitude towards the exploration of these twilight souls. We approached this investigation without any preconceived ideas, and although at the beginning inexperience may have left much to be desired in our methods, we had at least no theories to verify.

We tried always to adhere to the empirical method, and to avoid as far as possible the shadowy by-ways of metaphysical speculation and psychological abstraction to which research in this field seems inherently inclined.

We also decided against setting ourselves an exclusively anthropomorphic criterion; but this proved to be more attractive as a theoretical basis of research than efficient as a practical means of avoiding error.

It is true that a continual reference to human mentality is not the ready highway to truth that it seems to be at the first glance. There are profound – and, to the believer in the theory of continuous mental evolution, even startling – differences in the lesser eddies of the psychic stream. The great current is beyond doubt the same in kind, however much it may differ in volume and intensity, but it is in these lesser eddies that the significance

becomes obscured by a continual reference to human psychology. This we realised clearly.

On the other hand, these differences excepted, the mental processes of the chacmas are generally so human-like that it proved impossible to submit them to a critical examination without accepting as a standard our common human experience.

It is necessary to state that the environment of this wild troop cannot be described as quite natural. They were completely isolated and had evidently been so for many years; the intrusion of man as a dominating element added other profound effects to those of unnatural isolation.

In a systematic study of behaviour these particular conditions would have been an advantage had it been possible to compare the habits of the chacma we investigated with those living under more natural circumstances.

But there were two great difficulties preventing such a comparison. The first was the problem of finding any troop where the reaction to man's intrusion had not created habits that would not have existed in his absence, and the second was the supreme difficulty of observing closely and continuously any troop not so circumstanced.

We did, however, observe some other wild troops under more natural conditions, as will be apparent in this record of a small portion of our work, which is basically an attempt to interpret some of the actions we studied in our troop compared with others less isolated, rather than a detailed description of the chacma's behaviour.



## **Habits Acquired in Different Environments**

AN OUTSTANDING CHARACTERISTIC of the chacmas is their ability to thrive in the most varied environments. They are equally at home on the fertile mountains of the Cape and in the sterile hills of our more northerly terrain. In the Cape they are in the midst of a plentiful and varying food supply. Here, as Darwin has pointed out, the proportion of different species of plants to the extent of soil area covered is greater than in any other continent, and no less plentiful and varied is the insect life.

The mountain masses of the Cape afford, therefore, a safe retreat in the midst of thickly populated districts, and their protective value is chiefly due to the fact that natural fertility renders it unnecessary for the baboons to engage in the dangerous expedient of exacting contributions from the farms of their human neighbours.

It is hard to imagine an environment more different from this land of plenty, with regular rains, sheltering caves, precipices and forests and perennial mountain streams, than the rugged, sterile hills of the north, where existence has become an unending struggle for the chacma.

Not only is his life more instantly jeopardised on these low and shelterless hills by the presence of man, but the question of a sufficient food supply has become a complex problem. Yet even here the chacma thrives under conditions which would, I should imagine, have brought about the extermination of any other species of gregarious mammal. Indeed, many great species of

mammals have been exterminated in this country under conditions far more naturally favourable.

But there is an even more profound difference in natural environment than the one created by difference of locality only.

It is beyond doubt that the great majority of the species have only in recent times ceased to be arboreal animals and have migrated to the hills and mountains under pressure of defensive necessity and have become purely mountain animals. There are instances where such migrations have taken place within the memory of man.

But this change in natural habitat has not been universal. Along the great river-ways of South Africa in the less populated regions, there are still great numbers of baboons inhabiting the forests, where they live as largely arboreal animals.

It will be realised how very different their habits and general way of life must be to render existence possible under two such radically different sets of natural conditions. The 'tree' or 'river' baboon is popularly spoken of as a distinct variety of species, a designation which has no other foundation than these greatly divergent habits.

These different habits are not determined only by the difference in the natural food supply or by the difference in environmental dangers; they are brought about by conditions which affect the entire existence of the animal in its relation to nature.

They differ no less profoundly in some of their habits than, for instance, the klipspringer (*Oreotragus saltator*) and the steenbok (*Neotraginus*). Nonetheless, they are the same species, and there is no morphological reason for describing the river baboon as a 'local variety' in the generally understood sense. Nor is there any hereditary limitation to one environment, as there would be in all

lower animals similarly placed.

We established experimentally that if an infant arboreal baboon is given to a mountain troop, it is adopted and grows up with the complete knowledge necessary for it to exist in its new environment. (The reverse was not proved.)

Among the higher vertebrates the nature of their food supply is certainly a great element in determining the course of psychic and morphological specialisation: the aardvark (*Orycteropus afer*) – an animate digging machine, toothless, with its long sticky tongue, its wonderful instinct for locating deep termite nests in hard soil; the remarkable bodily structure of the giraffe; the conversion of the flying wings of the penguin into paddles – all were modifications selected primarily by the adoption of a special food supply, and this is the case in most higher animals.

It seems also to be a general rule in nature that any sudden change of environment involving the loss of natural food supply – although food for which the organism has not been specialised may be plentiful in the new environment – means destruction.

For instance, the South African otter can, in captivity, subsist on warm-blooded terrestrial animals exclusively, without ever entering water, and yet several instances came to our notice where otters were driven by drought to take up their residence at shallow inland pools without fish or crabs, and they invariably died of hunger, although small terrestrial animals abounded in these drinking places. It is hardly conceivable that structural modification in this case rendered the capture of sufficient animals to sustain life impossible. It was ‘instinct’ that stood in the way.

This example emphasises the fact that the psychic specialisation is generally more powerful in confirming an

animal's reaction to a definite environment than correlated somatic modifications. It is true that species outside the order of primates have been known to adopt new habits because of radical change of food, but all the instances I know of clearly resulted from certain definite influences that are not present in the chacma.

In this country the rhinoceros-bird, which used to relieve the now vanished thick-skinned game of ticks, has undertaken the same office for the thinner-skinned domestic animals.

The removal of a tick from cattle frequently leaves a small open wound, and in such cases the bird eats the exposed flesh, often causing severe, if not fatal, injuries. From this habit it was an easy transition to the practice of attacking any open wounds on cattle. The Australian parrot which has taken to picking holes in the backs of sheep is similar. It is said the habit originated in a resemblance between the wool of the sheep and the covering of a fruit commonly eaten by the bird.

In these few instances, one principle invariably underlies the change of habit: the suggestive influence on the hereditary instinct directly conveyed by a natural food. In the chacma no such connection can be traced in the majority of new food habits.

The natural food of the chacma consists of fruits and insects. I know of no verified instance where, under natural conditions, the flesh of warm-blooded animals is habitually eaten.<sup>1</sup> Now if any two extremes of locality inhabited by the chacma are considered, it will be found that the species of insects and fruits which constitute their principal food supply vary greatly and, although the nature of the supply is identical, the means of utilising it differ more profoundly than in any other lower animals, however widely dispersed.

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<sup>1</sup> In captivity they easily acquire the habit of eating cooked meat, as also they frequently acquire an inordinate craving for tobacco and alcohol.

But, in addition to these varying methods of procuring natural food, what may be described as supplementary habits have been acquired in different localities which are altogether outside the order of nature – as one conceives that order to exist in the case of the higher mammals – habits which at once place the chacma in a class by itself.

It is necessary to refer to only a few of these personally verified habits in order to convey an idea of the singularity of the animal in this respect.

The southern limit of the baobab tree (*Adansonia digitata*) is the far north of the Transvaal, where it grows to a great height and size, dominating the entire forest. It bears a fruit containing a sub-acid pulp popularly valued as a febrifuge and for making cooling drinks. This fruit is doubly protected, for it grows at such great height from the ground that until it drops, only birds and arboreal animals can reach it, and its outer shell is so hard that it resists all attacks. I know of no animal that under natural conditions can reach the edible core, or habitually use the fruit as food. The chacma was the one exception.

A troop we had an opportunity of observing travelled great distances to reach the isolated baobabs that are scattered through the *bushveld*. The country between the trees and the group of hills they inhabited was generally sandy and stoneless. They would pick the fruit and carry it for great distances to the foot of the hills, where the nearest stones were situated. The fruit is about the size of a small coconut, and the means the chacma adopted for carrying it to the hills was very interesting.

The adults generally carried four: one held in the teeth by the stalk on which it grew, one under the right arm, and one in each hand, the animal treading on those held in the hands. We never

saw fruit carried under the left arm.

On reaching the hills, the fruit was placed on a flat rock and smashed with stones. My colleague noticed that in many instances, particularly among the younger individuals, great efforts were first made to break the fruit by hammering it on the rock by hand before a stone was used as a tool. Often all efforts would fail to break the fruit. It was then rolled off the rock and never touched again. In no other locality we visited where these trees grew did we come across this habit.

This group in the Magalakwên Valley had also acquired a habit which evinced just as high a conception of means to a definite end. They inhabited an isolated precipitous group of hills about five miles from the river. At the time we came in contact with them, a prolonged drought had dried up all the springs and drinking places in the hills. The nearest water they could reach was in the river bed; even here the only means of reaching it was by digging deep holes in the shifting sand. To get to the river bed they had to traverse a very exposed tract of country and cross a big road – the sort of journey to which the chacma is decidedly averse.

Very often the presence of human beings in the vicinity meant the baboons had to go without water for several days, or jeopardise their lives in reaching it.

But we found the hill-sides strewn with the chewed fibres of a bulb which proved to be that of a lily which contains a great deal of moisture. The bulb grows at a considerable depth, generally under stones or in soil which in drought is almost as hard as stone. A long rush-like leafless stalk grows out of the bulb and, after a number of twistings underneath and past stones, reaches the surface. A slight pull at this stalk detaches it from the bulb or



breaks it deep down, and once it is detached it is almost impossible to find the bulb by digging.

Not only had the troop of chacmas discovered that this bulb would assuage thirst, but their method of reaching it showed that they fully appreciated the chief defensive attribute of the plant, and used the only means of overcoming it. In digging they were careful not to detach the stalk, but dug down round it, removing the stones, and so tracing it to the bulb. We never saw this bulb dug up or chewed anywhere else. In the vicinity of our own troop which we kept under continual observation, the plant was plentiful but it was never used by the baboons.

No less remarkable is the habit which has gained for the chacma a notoriety which was perhaps the chief reason that induced the Government to place a price on its head.

The animal is no flesh eater and no bird or mammal is ever killed for food, yet throughout the sheep districts of the Cape a great many young lambs are killed by baboons. The flesh is not eaten; their only object is to secure the curdled milk from the stomach. Here in the northern Transvaal the habit has not been acquired. No lamb is ever touched although a troop may be in contact with flocks of sheep almost daily.

Another troop which we had an opportunity of watching for a day had discovered a similarly 'rational' method of overcoming an environmental difficulty.

The presence of man in their neighbourhood had left them only one drinking place that could be visited with any degree of safety. This was a thermal spring. The water in the spring itself and for some distance downstream was too hot to drink, and a farmhouse, towards which the water flowed, made it dangerous for the baboons to go farther downstream.



But whenever they were satisfied that danger from the farm was not too threatening, they visited a spot where the water was drinkably cool. Very often this was impossible for long periods, as the farmlands extended right up to this place, and men were working in the vicinity. The baboons were then compelled to find water in the spring itself or immediately below it.

On the occasion that we observed their behaviour, about a third of the troop lined up along the water course below the spring, and each one scooped a furrow through the mud. When these furrows were filled with water, they moved farther up the hill-side to wait for it to cool.

The larger portion of the troop, agitated and uneasy, did not approach the water at all while these operations were going on. They awaited the results of their friends' labours at a safe distance. Those that took part in the operation of making the furrows consisted of about equal numbers of adults and young ones, and the difference in their respective behaviour was interesting. The adults went about the work quietly, methodically and phlegmatically, in the chacma manner, but the youngsters were greatly excited, jerking out the mud erratically, and frequently,

when the hot water came in contact with their hands, uttering cries of rage.

After about an hour's wait on the hill-side, the whole troop again approached the water and commenced drinking out of the furrows. We noticed that only a very small percentage of these were used, and each baboon quietly waited his turn to drink.

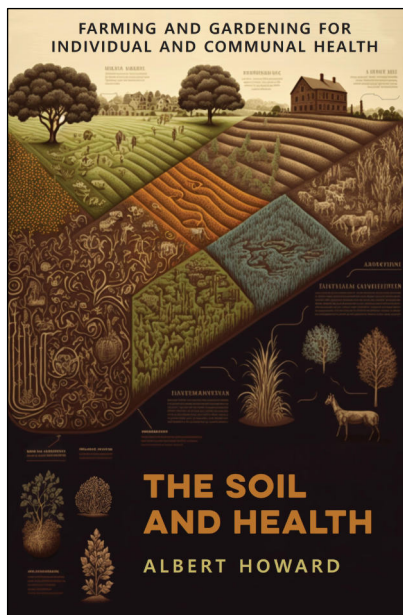
The reason became apparent on closer examination. The mud was generally so soft that many furrows were soon obliterated and only those dug in the firmer area lasted long enough to cool the water. But even the majority of these could not be used, because they were made the wrong way. Whenever the furrow was dragged in a more or less down-stream direction, the continual entrance of hot water prevented cooling. A small proportion were scooped out more or less upstream or at right angles to the current, and in these the water cooled more quickly.

Whether the correct method was adopted by accident or design it was impossible for us to establish, since we had no opportunity of ascertaining whether the same individuals always adopted the same method of construction.

It needs no wide systematic knowledge of animal behaviour to recognise the great difference there is between habits such as these and the greatest adaptability conceivable in animals below the primates.

No other animal, under any circumstances, would or could behave in exactly this way, although it might prove difficult to define in other than general and meaningless terms the real nature of the difference. And without an appreciation of the significance of these peculiarities, it will be found difficult to form a satisfactory conception of the chacma's place in the scheme of mental evolution.





## The Soil and Health

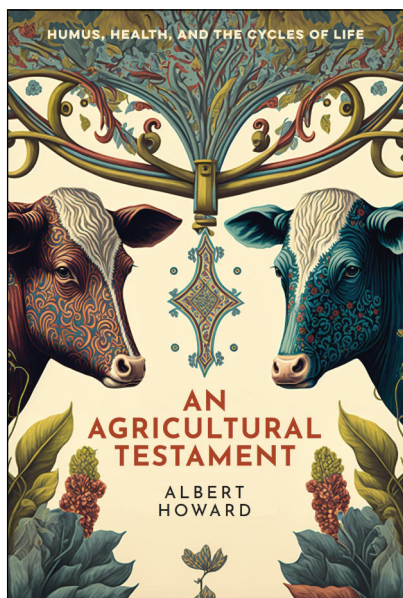
Albert Howard

This valuable book is a detailed analysis of the vital role of humus and compost in soil health – and the importance of soil health to the health of crops and the humans who eat them. The author is keenly aware of the dead end which awaits humanity if we insist on growing our food using artificial fertilisers and poisons.

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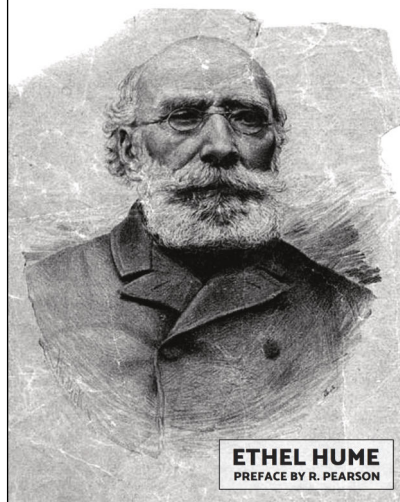
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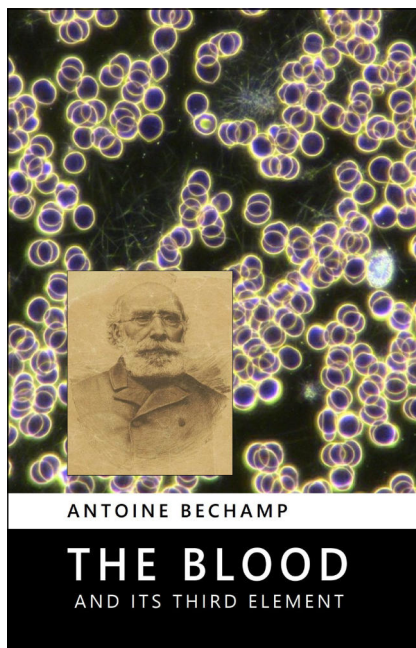
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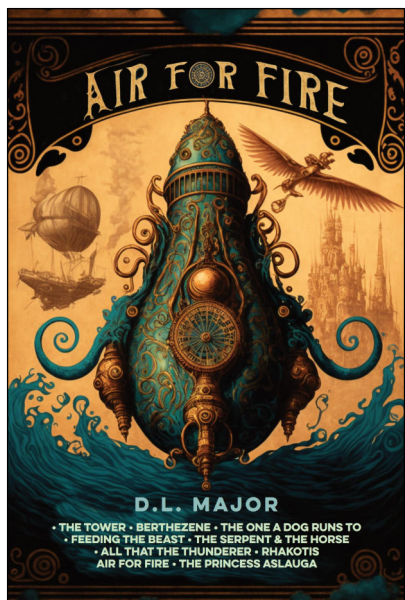
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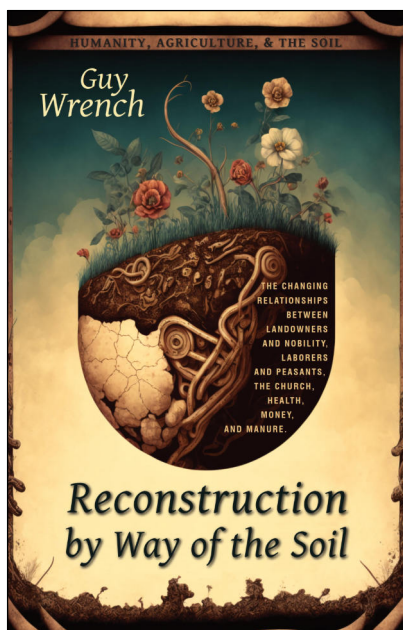
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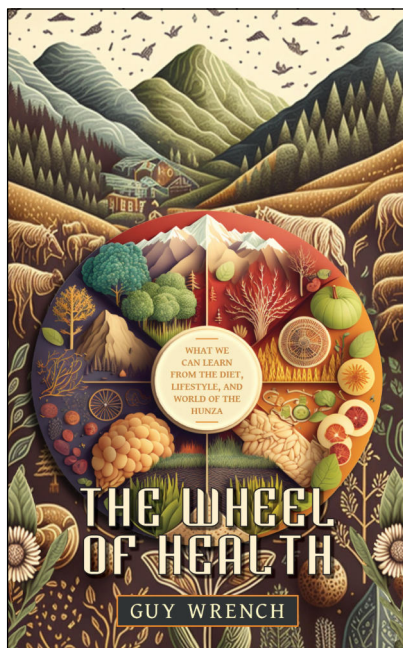
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Includes case studies from Ancient Rome, nomadic societies, medieval England, Africa and Egypt, the West Indies, Russia, Australia and the USA to show that nothing is more important than the relationship between civilization and the soil. The way that the soil is treated has brought about both the rise and fall of civilizations.

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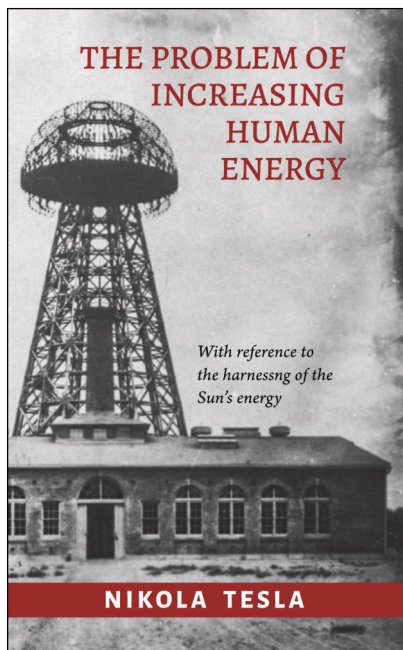
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The Hunza of northern Pakistan were famous for their extraordinary vitality and health. Dr Wrench argues that in part at least, this is because their food was not made 'sophisticated', by the artificial processes typically applied to modern processed food. How these processes affect our food is dealt with in great detail in this book. What Dr Wrench uncovered in his researches goes deeper than just food, though. It's about water.

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## The Problem of Increasing Human Energy

Nikola Tesla

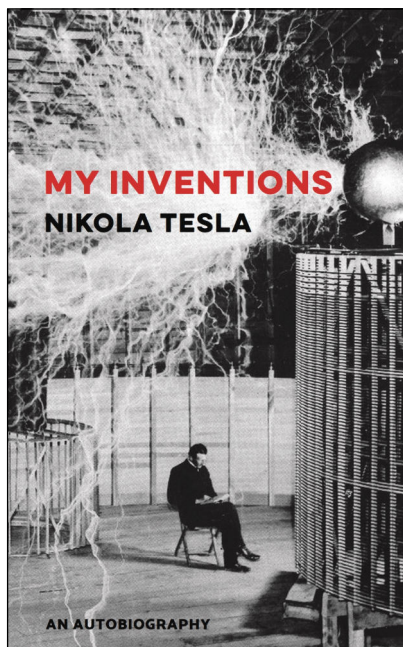
Contains Tesla's thoughts on humanity's relationship with the universe, and also his explanation of the technological wonders embodied in his work.

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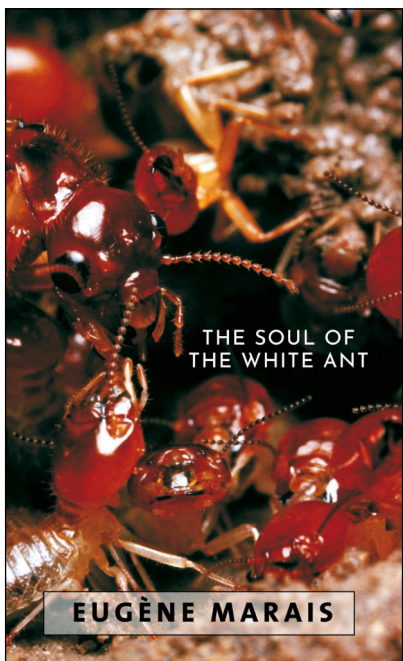
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# **Illuminati**

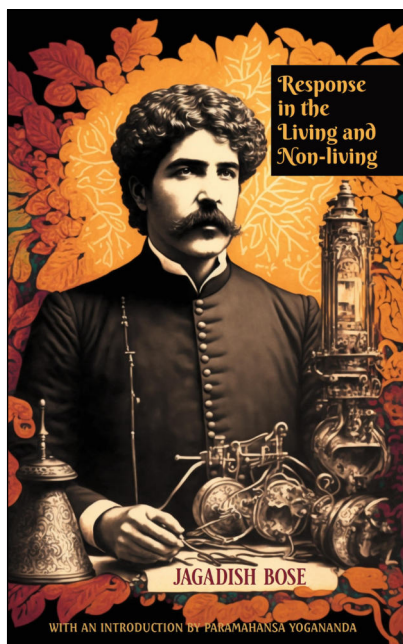
Myron Fagan

This book describes how the Illuminati became the instrument of the Rothschilds to achieve a One World Government, and how every war during the past two centuries has been instigated by this group. This is an historical text with names, dates, organizations and mode of operations, all exposing the octopus gripping the world today.

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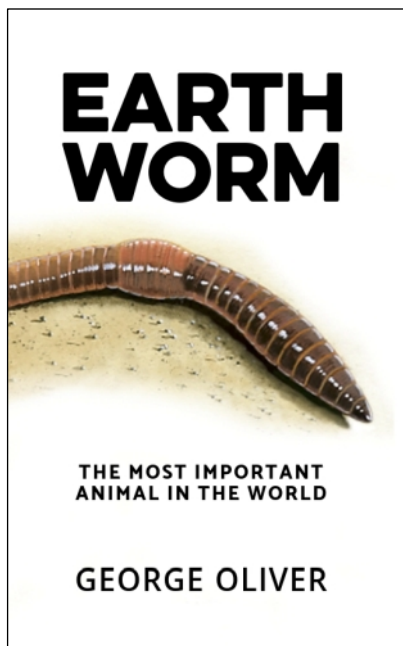
Edmund Morris

Recently we have seen a great back-to-the-land movement, with many young professional people returning to small scale farming; thus it is useful to read about someone who did exactly the same thing in 1864. In that year, Edmund Morris and his family gave up their business and city life for a farm of ten acres, where they made a go of mixed farming, and then wrote a book about it.

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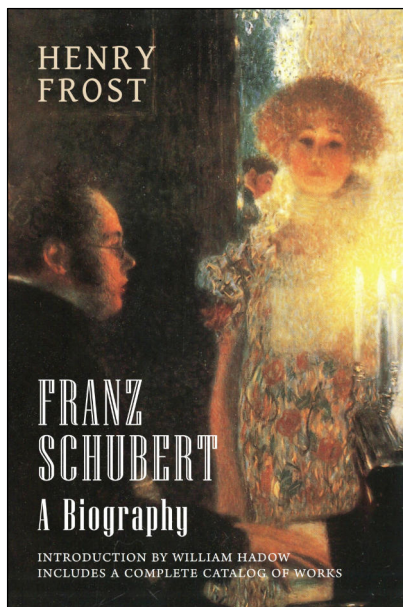
George Oliver

The author returns the reader to a time and methodology where people took responsibility for what they did and what they produced. In this world of spiraling food prices, huge landfills, diminishing food supplies, loss of topsoil, and water pollution, the reader is reminded that the world's most important animal could well be the humble earthworm.

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Henry Frost

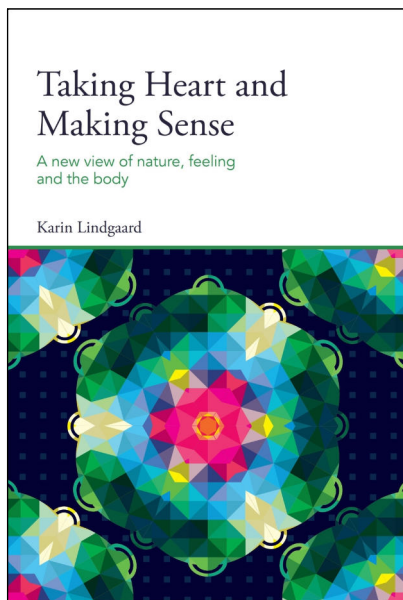
“With faith man steps forth into the world. Faith is far ahead of understanding and knowledge; for to understand anything, I must first of all believe something. Faith is the higher basis on which weak understanding rears its first columns of proof; reason is nothing but faith analysed.”

– Franz Schubert

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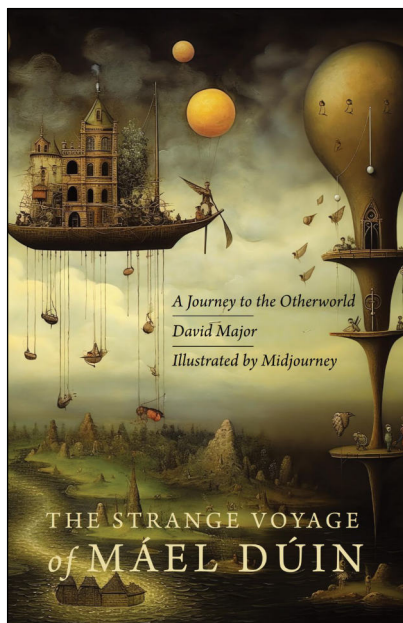
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