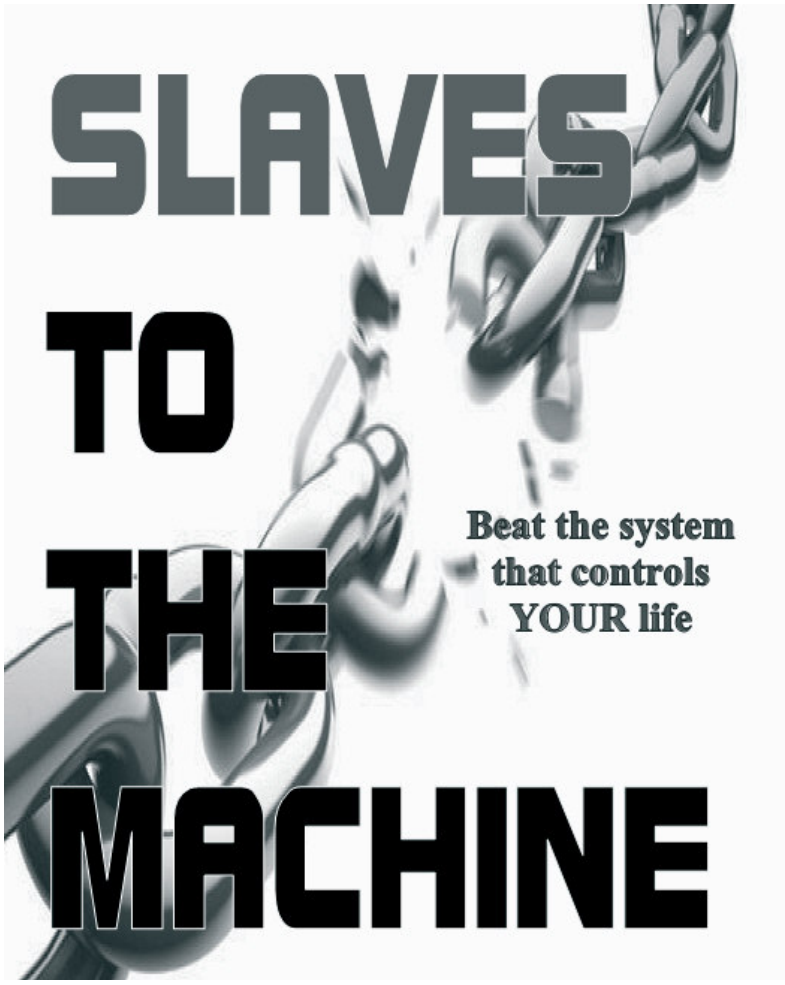

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SLAVES TO THE MACHINE

Beat The System That Controls YOUR Life

John Bapty Oates

SLAVES TO THE MACHINE: Beat The System That Controls YOUR Life

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A very special thanks goes to my wife Marguerite, for her loving care and support throughout these many years of writing, sustaining a precious and everlasting bond between us

About the Author

John Bapty Oates began free and independent thinking at age 4 in 1929, essentially questioning why the human race, being capable of high intelligence, did not conduct itself or its affairs intelligently.

He has been conditioned to the minimum by reading and formal education; now concluding that this is no disadvantage—but is helpful to the discovery of our fundamental truth, or humantruth as he calls it.

He maintains a website; www.humantruth.org

About the Book

This challenging book examines the state of the human mind and our world today, carrying essential thought further than ever before and making the profound discovery that what we regard as 'our mind' is in effect two minds; the conscious and the postconscious ('unconscious' describes a *state* of mind).

The brain mutation that made us human gave our existing conscious mind much increased capacity yet allowed it to remain motivated chiefly by instinct.

As a result the human race, despite high intelligence, has mainly applied itself to pursuing and developing the unintelligent competitive drives of instinct; responding to market forces - political and other pressures - continually causing man's inhumanity to man.

But mutation provided a large surplus mental capacity that was sidelined and ignored by the conscious. This uncommitted, powerful reasoning capability formed itself into the postconscious mind; the source of conscience - with freedom and independence to follow its own unconstrained course.

The function of a free conglomeration of neurons, axons, dendrites, synapses etc., can only be the ultimate discovery of truth. No other function makes sense. Clearly then, the objective of our chief faculty, the postconscious, is truth, and such an intelligent species as ourselves needs to be guided by that truth (ie to be supraconscious), recognising it as the basis of complete agreement and cooperation, to be realised in a new world community.

Instead, guided by instinct, we have subjected ourselves to the Machine and its amoral Wrong Reality, with some good but also many immoral, crazy, painful and devastating consequences.

This book tells the story of our tragic march towards Machine-based societies and points the way to surely the only enduring solution; our collective advancement to supraconsciousness, and to a truly humane, or 'humantrue' society.

SLAVES TO THE MACHINE

FOREWORD

Books are generally part of the norm. As a rule they are written by authors who occupy a certain place in the 'real' world. The writing is designed to interest or entertain the public. People have developed certain expectations of books; they like those which offer to help and strengthen the self, to make it more contented and successful in the world, to reconcile the existing self to its present reality. Publishers are aware of those expectations and usually publish only those books that promise to interest and entertain a wide enough public as to bring in a profit. That is the present 'way of the world'. This book envisages a very much better world, and a very different, humantrue way of life.

I think it is fair to say as a rule that books do not greatly change their readers. Most of us enjoy reading books that broadly harmonise with our own outlook, even though they may present a world different from ours in detail. We do study some books dealing with certain special subjects for the sake of the facts or insights they contain, which we in turn wish to learn. We read, with detached interest, views and opinions which go to one extreme on our left so-to-speak, and another extreme to our right; while we ourselves keep treading our old familiar middle path, little changed. In other words, we regard books as adjuncts of ourselves, or as objects that are subject to our whim, to be accepted or rejected, liked or disliked, noticed or unnoticed by us, at will.

We don't expect a book to be more closely representative of us than our own selves, showing that there is another, truer, potential self that we do not yet recognise. We don't expect a book to penetrate further into ourselves than

we wish; to question our cherished beliefs; to undermine our defences and to move us well away from our old familiar path. This book does, or aims to do, all these things.

I am approaching you not as you presently are but as you truly, potentially are, and hope that you will approach my efforts not determined to maintain your present self, but willing to seek and find your true self. I hope you will not let your present self turn you away from this book, but that you will allow the book to challenge your 'higher' mind; that you will listen to your own thoughts that then emerge.

Should you choose to ignore these words, that choice will be made by your conscious self, but it is likely that your 'higher' mind, i.e. your postconscious, will take them in despite that self. The function of the postconscious is truth. Its true conclusions are available to consciousness, but not its deepest reasoning that goes to form those true conclusions. Since it is the same, or potentially the same mind in everybody, any well-developed postconscious that reveals its truth shall be revealing the actual or potential truth within any other postconscious. That is what this book is trying to do. It goes against convention, but present convention is false. Above all else we need human-truth.

J.B.O.

HISTORY - writing of the first edition of this book was completed in 1990 against the background concerns of that time. World events have moved on, of course, and this new 2008 edition reflects some of the changes. Nuclear power was abandoned and Capitalist/Communist confrontation has largely disappeared, mainly due to public protest. Awareness of the global warming threat has dramatically increased, as has scientific understanding of the origins of this planet and of the formation of life.

On the other hand wars have continued, despite public protest, and the old confrontation has been replaced by that between Democracy and Islam. To combat the threats of climate change it is proposed to reintroduce nuclear power.

In these and many other respects this short passage of time makes no big difference, for the characteristics of our existing wrong reality and this book's purpose to expose them, and change them, remain the same.

J.B.O. 2009

TABLE OF CONTENTS

PART V: INTERPRETATION

PART VI: ILLUMINATION

PART VII: REALISATION OF HUMANTRUE SOCIETY

PART VIII: FURTHER ILLUMINATION

LIST OF DIAGRAMS BY CHAPTER

PREFACE

The objective of this book is to help in bringing about a benign, peaceful, happy - i.e. humantrue - society. This will be a worldwide society whose basic values and practices are in accord with the fundamental understanding, thinking and feeling of every individual. These values and practices will be constantly and universally upheld because they have been fully and willingly agreed. This society will ensure that the minds of its children are fully opened so that they share in this common, and true, understanding, thinking and feeling from the beginning.

In a humantrue society there will be a great sense of trust in all mankind and a feeling of total security. There will be no locking of doors to protect property. Children shall go out to play without fear. We will have the comforting knowledge that everyone in the world shares the same basic concerns. We shall be free of anxiety, because the reason for our living will be the well-being of each other.

A great feature of humantrue society will be co-operation. We shall conduct our affairs according to true reason. We shall be enabled to understand and follow our moral code, which requires that we co-operate rather than compete, and to show the utmost kindness and compassion to each other. By way of reason, co-operation ensures that the species survives with the minimum of pain, hurt and damage, either to itself or to its environment.

We shall give and share. This is the intelligent thing to do and the one way of ensuring that all people are equally provided for. A humantrue society will be unable to do otherwise, because this is a true principle, and our intelligence makes us perfectly capable of carrying the principle out.

A humantrue society will be united. Based upon intelligent agreement, we and our framework of life shall treat everybody as equal, with no artificial differences. This makes sense, because our chief faculty is our mind; the

function of the intellectual mind is truth, and essential truth is one and the same for everyone. Responsibility for a humantrue society can be entrusted to no other than each and every individual. This is the only way of ensuring that society is humantrue. By dividing 'power' amongst all individuals it loses its separate influence and reduces to nothing, whereas the strength of responsibility increases with wide sharing. Life in a humantrue society will be simple. It will be entirely understandable to every responsible individual member. There will be nothing of more consequence than the gentle, loving, constructive everyday concerns of the individual. There will be general concern to put the minimum strain upon Earth. The practical processes of living will engage our minds only as far as is required to carry them out thoroughly; otherwise our intellects will flower in every possible abstract way; through music for example.

That is how life on Earth should, and could, be. It is not how human life currently is. We are, or seem to be far from achieving such a society. This is not because it is an impossible dream, but because we have not yet made the effort to break the bonds of conditioning and to realise our intellectual potential.

Without doubt we are a race of superior intelligence, yet it does not strike us that the basic practices of our society are far from intelligent. Consider some of these practices and our consequent behaviour (fully explored in Part IV.) Our subjection to a competitive money economy for example, which employs most of us (but unemploys many of us) in its interests rather than being employed by us in the human interest. Under this demonstrably false economy, or management, many people waste enormous effort and time in simply handling, calculating and multiplying money and measuring everything in terms of money. As another example of unintelligent practice, take the fact that we continually progress, materially, technologically and politically. We accept material progress as an inevitable fact of life, hardly stopping to consider the opposite view - that it is undesirable, unjustified, and that we accept it merely out of habit. Finally, look at our practice of submitting to the institutions of a system dedicated to ruthless pursuit of the instinctive competitive drives (finance, commerce, industry), but also to other institutions of the same system (law, police; the military) which curb some of the inevitable inhumanities of that pursuit, and are supposed to protect us when it goes recklessly out of control.

Some of the extremely traumatic recent events in our history are at last beginning to bring home to us our own shortcomings. War is a feature of amoral, competitive, divided, authoritative society; a phenomenon resulting from small differences escalating to huge conflicts because society lacks benign self-control. Within the last seventy-five years many, many millions of

humans have died in two world wars and countless smaller ones, in the course of which human behaviour has descended to unbelievably callous, merciless and bloodthirsty levels. During the same period millions more have died of cruel oppression; also from starvation, neglect, and disease because society has failed to look after them.

These enormous figures are easy to quote dispassionately, but just imagine the suffering and heartbreak surrounding each death.

Occurring in a period of only sixty years, and still going on, is brutality of a more disturbing kind behind closed doors; by ruthless torture often ending in execution. One way of persuading oneself of the need for fundamental radical change is to remember that human individuals just like ourselves gassed the Jews in Hitler's concentration camps, enslaved and slaughtered peasants and politicians alike in Stalin's regime of terror, degraded, terrorised, maimed Cambodian civilians on the orders of Pol Pot, and then, in Yugoslavia and Rwanda, were murdering, raping and displacing whole peoples because of cultural and religious differences.

The fact is that mankind is unpredictable, dangerous and uncontrollable, and shall remain so unless and until we become what this book shows we ought by nature to be - supraconscious. The whole purpose of this book is to make clear the full significance of this word, and to show without doubt that it is our true nature to be supraconscious.

It is when ruthless leaders come to believe they cannot control or neutralise people in any other way that they order, and we perform, unspeakable atrocities. These horrors result from the accepted amoral norms being taken to extremes. In certain circumstances all humans are capable of this terrible behaviour. For all the complexities of our applied intelligence, our intellect is yet unfulfilled. Though we believe ourselves to be, or try to be gentle, compassionate and peaceable, too many of us, too often, show the characteristics of sophisticated predators.

Our present false habits and standards, chained to existing society's amoral rules and instinctive practices (competitive money orientation, political dishonesty, self-interest, racial and other forms of discrimination) contain the potential for exploding into these extremes of horrendously violent and inhuman behaviour. That is the false picture we have always had before us. This book sets out along the road to the altogether happier, humantrue outlook already briefly described. The book reveals humanity's true potential for supraconscious awareness. If we fulfil that potential we shall bring about a world where anything other than gentle, compassionate and peaceable behaviour shall be impossible.

A humantrue world would be right and good for us, but it is a prospect so remote from present reality as to need great initial mental effort to envisage.

There is no doubt that we are capable of that vision however, and once we see it and determine to make it our reality, we shall achieve a humantrue world relatively easily. The question is, are we willing to make the initial effort?

You, I, and all human individuals throughout the world have brains of enormous capacity. There may be about one hundred thousand million neurons in the human cerebral cortex. Of these, about ten thousand million comprise the covering cortex, the neocortex, separated into six layers with a huge potential number of correlating dendrites, axons, and synapses. Some other animals, such as whales and dolphins, have actually or comparatively larger brains but not this same layered neocortex. It is this that gives us our infinitely superior, and in my view, optimum reasoning power.

Were we truly represented by our faculty of higher intelligence, unique on Earth, we would surely now be living in peace and contentment. But our instinctive impulsions are much more representative of us than this faculty of knowing and reasoning, or intellect.

It is the animal character of humanity, using its brain as calculator, which has aided and abetted our astonishingly rapid, yet essentially retrogressive development, from individual rivalry to world war, for example, and from local pecking orders to the wealth and poverty of nations.

Yet we each have the ability to be morally aware of right and wrong, good and bad principles, and our reasoning capacity gives us the responsibility for applying those principles in our world.

It is with our active assistance, and despite our mental capacity, that our world functions on wrong and bad principles. Society is a permanent battleground, with competitive aims and interests locked in continual combat. The inner intelligence of the mind looks on like a horrified, protesting spectator, wondering why life cannot be altogether benign and pleasant. It is the nature of high intelligence to answer all questions and solve all problems - to make life in its own image, so to speak. This thoughtful process must result in continual improvement of society towards perfection - unless it is prevented. Since existing human society is progressing otherwise, it is clear that in our case the process has been prevented.

THE AUTOMATON

We do try to improve our society, with some success, but this is a fringe activity, not that to which our energies are mainly applied. Humanity is not making intelligent progress towards answering and solving its questions and problems, is not building a growing body of agreed truth that shall be our infallible guide. This is the process that is being prevented, for the reason that we are not guided by our intelligence. We are driven, body and mind, by an automaton.

The automaton is a self-acting influence, the mainspring of our society. It embodies the principle of competitive conflict, an instinctive driving force. This is the principle on which our world society is founded, its chief motivation; the first and foremost influence over our development so far, and the basic cause of our problems. The stressful state of human society is not primarily due to the present conflicting characteristics of its individuals, but is inherent in the automaton that developed those characteristics, which has imposed this conflict on us, yet with our help.

The bulk of history has been made by the application of our minds and bodies to the automatic drives. We have pursued a growing complexity of competitive aims and material interests, and these have become the norm. The whole interconnected system of practices and institutions that dictate, represent, and control our activities needs a name - let it be called the MACHINE.

HUMANS IN HARNESS

We are harnessed to the automaton, whose influence permeates every inch of the fabric of our lives. And we serve the Machine whose institutions, representing every conceivable aim and interest of those automatic drives, have taken over the exploitation and control of our resources and activities. The Machine includes institutions that we suppose to be working in the interests of our own protection and well-being. But whilst serving even these institutions we remain harnessed to the automaton, in whose interests we are acting contrary to our well-being.

Even though we become aware of our true interests and opposed to the Machine, it is extremely difficult to throw off our harness and escape from servitude. The Machine provides most of the necessities of life, to obtain which we have to serve it, or conform to its practices. The Machine has weaved most of the fabric of society, and provides the framework of our community. It also controls the means of widespread communication, by

which we are not so much humanly united as wired-in to a network that connects our automatic selves together.

Were we to become wholly and fully true to ourselves we would have to be isolated individuals, but such personal independence is hardly practicable because of humanity's overwhelming dependence on the Machine. As things stand, if we are to provide for ourselves, join in community, and attach some meaning to our lives, we are obliged largely to conform to the norm. We do not find it easy to express our true inner thoughts to others, or even to ourselves, because those thoughts are abnormal in the eyes of automatic reality.

In this book that you are now reading - an attempt to express wholly true reasoning - every word and every construction of meaning has to fight against enormous pressure from the Machine to crush it down into conformity. If this writing is to have any hope of breaking the iron grip of that normal conformity, it must make automatic reason wither and die from exposure to truth. If that makes it so unfamiliar, abnormal or intense as to be hard to read, so be it. Maybe the conclusion to be drawn is that writing which is easy to read may not convey truth, and true breakthrough requires much hard work on the part of both reader and writer.

BRAIN FIXATION

We are born into this world with some instinctive inherited intelligence, but no ready-made complete processes of true reason. The human baby is expert at recognising its mother, for example, but not at judging whether she is right or wrong. Several years must elapse before every component of our faculty of intellect reaches full potential, and we become fully capable of reasoning for ourselves. In the interim we are exposed to direct experience of the world as it appears to be, or to indirect experience by way of TV programmes, comics and books. We are also exposed to the influence of parents, peers and teachers. Before our minds are fully fledged and potentially able to work out the truth of it all, we have been subject to about fifteen years of brain-fixation. Despite the crazily unreasonable picture which human life presents, if anybody reaches this stage with determination to discover truth, almost nobody sustains it.

We are also born with temperament, a series of emotional capacities each varying between strong and weak, mostly evolved as the accompaniment to instinct for coping with life in the natural world. In the process of growing up we have to learn how to adjust these emotions and adapt them, first to the Machine, then to the human community.

Normally our realistic characters are formed in three ways. 1: By our fixed mental conditioning and circumstances in existing reality. 2: By our reasoned and emotional reactions to the concepts and facts of our reality - whether we accept or reject, like or dislike them. 3: By the balance or imbalance resulting from 1 and 2 - whether we react destructively against reality; whether we passively accept and make the best we can of the here and now; or whether we act constructively to gain for ourselves an advantageous position in the Machine.

What constitutes our willing brain fixation is either that we have allowed our minds to be so conditioned that we cannot perceive any but these three ways, or, that seeing another possible way, we deny it. Whether our character is formed by the first, second or third way, or by a combination of all three, practically all of us accept the underlying facts of existing reality. Many people protest against the inhuman effects, but almost nobody questions the fundamental principles of the Machine.

For example, we think law and order depends on strong government and do not consider an alternative view - that government may well cause lawlessness by relieving people of responsibility for their society. We consider that the competitive money economy reflects the facets of human nature, and do not normally think to the contrary - that apparent human nature has largely been formed by the characteristics of the money economy.

HUMANITY V. THE MACHINE

The Machine is our motivation, and the framework of our society. It depends on us to keep it accelerating along, which we do because we believe there is no alternative. But this is our public activity. Privately we observe different standards. So although our public activity supports the amoral and immoral affairs of the Machine, we are unwilling publicly to admit this because it contravenes our private morality. Yet at the same time we believe it naïve to expect that our private morality could possibly govern our public activities, so we pretend that we want to be moral but are continually frustrated by events which we also pretend are beyond our control. We pay lip service to humane standards whilst at the same time methodically betraying them. For example, humans talk endlessly about peace, but forever make war. We increase efforts to fight escalating crime, but steadily move ever further away from understanding and removing its causes. The divorce rate increases as our general failure to co-operate, tolerate and agree seeps more deeply into our personal lives. Were we making true progress, war, crime, policing and divorce would be steadily declining.

We keep these double standards by dividing ourselves into two; a public, hard outer shell of self, and a private, soft inner awareness. We are able to sustain our outer shells by the fact that the hard reality to which they belong constantly confirms the belief that we have no alternative. Also, our outer shells employ the denial factor, refusing to respond to the still, small voice of conscience. And so we demand Machine satisfactions to make up for the loss of true fulfilment. We defend our automatic selves, and these satisfactions, on the grounds that they are the most that we can expect or hope for. It is the hard outlook of our outer shells that we mostly act upon. When it comes to a choice between morals and lawful gain of money for instance, the great majority choose money. From this viewpoint the virtual eclipse of our true awareness can be justified, because the soft inner shell can be seen as a weakness, having to take a back seat in the tough, real world. Under the surface, our lives are really a struggle between our humanity and the Machine, and the Machine always comes out on top. We are hardly aware of this fact because, on the surface, we are all working for the Machine, on its side in the struggle. To move out of this wrong reality and into the right one, we need to wake up to the fact that our true humanity is fighting a losing battle. Whoever we are, we need to realise that each and every one of us belongs on the human side. The Machine is the common enemy on the other side. It can be defeated if we become united.

The subjects touched upon so far shall be returned to later, more fully and from different angles. This is the beginning of an exploration, and I hope you will reserve critical judgement until it is completed.

SLAVES TO THE MACHINE

Part I
EVOLUTION OF THINKING BEINGS

Chapter 1

FORMATION OF LIFE

In tackling the subject of evolution, and the formation of life, my object is not to impart knowledge but to draw conclusions from knowledge that most of us already possess or can easily discover, conclusions which are not normally drawn. I want to show that humanity's present nature and state is not inevitable and was not preordained by evolution; that our evolution was a means of producing intellect in human form, and that intellect is itself a means the achievement of whose ends requires a human nature and state very different from that which presently exists here on Earth.

It appears to be generally accepted, and has been made clear to me by Peter Russell (The Awakening Earth, publisher Routledge & Keegan Paul), that a Big Bang originated this universe, about fifteen billion years ago. Approximately one-hundredth of a second after this event nothing existed but pure energy at a temperature of 100,000,000,000degC. At that precise time there were none of the elementary particles of matter - electrons, protons, etc.- because nothing of that sort can exist at such high temperatures. The terms here used to describe time, heat and the character of matter are those invented by humanity as relevant to our particular experience of the subsequent universe.

The foregoing information is part of current scientific theory. It is acceptable not only because it is the result of advanced scientific thinking based on long research but also because it is reasonable. In the search for the true meaning and purpose of life, without the benefit of modern scientific research, humanity has resorted to the imagination and supported its chosen beliefs with contrived reason. While these beliefs could not be proven, neither could

they be disproved. Now that we have well-founded theories about the creation and evolution of life, a major obstacle has been cleared from the way of reason towards truth.

It is necessary to comment on the meaning of truth. This word is hard to define because we presently use it to mean many different things. Those meanings that I ascribe to it are given in Part III, Chapter 13, and Part V, Chapter 32. In the meantime I suggest that you keep an open mind as to the significance of this word.

Humanity's search for truth has been concentrated very much more on the discovery of scientific fact than on reasoning with the knowledge we already have. Consequently we are on the verge of total scientific understanding, yet wallowing in increasing social chaos because we do not understand ourselves or our reality. The relevance of our ability to describe the creation of this universe to within one-hundredth of a second of the Big Bang (even though we do not know what occurred before that precise time), and its subsequent history, is that it should eradicate all previous fanciful explanations of the creation of ourselves and our world, and bring us, so to speak, down to earth. But this is not the case. We still prefer searching for answers to finding them. Automated man worships science. Scientists have travelled far along the road of knowledge but appear to have missed the way of true reason, and seem to be raising up other fantasies to pose as human truth.

The significance of our relationship with the universe, and the meaning and purpose of life, is fully explored in Chapters 36 and 37. Right now I think it useful to point out that however mysterious things seem when partially hidden from our understanding, when fully exposed they are revealed as matter-of-fact. It is reasonable to deduce that any thing, once it is fully explained, shall take its logical place in the train of causes and effects of all things. This applies to abstracts as well as to actual things. No material thing except pure energy could survive the Big Bang, but abstracts could survive it, parts of the truth in which, as I believe and shall suggest later, all ultimate meaning is to be found. To fulfil truth is the purpose underlying all the matter-of-fact processes of the universe. Our present concern - evolution - we can reasonably presume to be the result of another abstract, which not only survived the Big Bang but caused it to occur rather than allow energy to cancel itself out. This is the influence, to express energy in all conceivable ways, which has resulted in the existing universe. It has ultimately produced human life, not as an end in itself but as a means to an end. And humanity does not need to make yet more new discoveries to learn the essential truth. That truth is not mysterious and unknowable. All that we need to know is already knowable. We have but to open our minds to optimum reason.

To continue with generally accepted scientific theory, three minutes after the Big Bang the temperature of the rapidly expanding universe was 900,000,000degC, and neutrons and protons began combining to form stable atomic nuclei. About 700,000 years later the temperature had dropped to about 4000degC, and electrons and nuclei were combining to form simple, stable atoms, mostly hydrogen and helium. Below 4000degC gravitation draws atoms together, and the more they group together the more gravitational pull they exert. This process, continuing for some thousands of millions of years, eventually produced huge clouds of hydrogen and helium gas, whose internal condensation formed stars. During this time the universe had become very cold overall, but collapsing stars generated such heat that some of them exploded. Within these supernovae new and heavier elements of matter were formed and spread throughout the universe. Eventually much of this matter condensed into new stars, some of which exploded in turn. In this way all the stars, suns and planets were formed, including Earth and everything on Earth, and including our sun, a mass of hydrogen burning at 4000degC, and giving off the necessary energy to sustain our life.

It was once thought that the creation of life was a supernatural event; then that the conditions in which it could occur were very rare. Now it appears that the vital components are easily made and put together, given the right physical and chemical conditions, and that all kinds of suitable conditions are, or were, to be found. Our planet Earth came into being about 4500 million years ago, and the seas that soon formed did provide such suitable conditions for molecules to combine into macromolecules which in turn, about 1000 million years later, combined into simple cells.

It is not the aim of this book to retail the evolution of life in detail so much as to explore its significance in relation to the development of intelligence. Significant factors are that there seems to be a strong universal intention to create life; that there appears, at least on Earth, to be a planetary determination to progress and protect life; and that the progress of life inevitably brings about the advance of intelligence. To me, this suggests a purpose; not the purpose of a supreme power (which would hardly need to be so dependent on physics, or expected to have to wait so long for results), but the purpose of a weak force that can be achieved only with the help of intelligence. This question also is pursued further in Part V, Chapter 36, and Part VI, Chapter 37.

The biosphere's determination to progress and protect life is suggested by James Lovelock in his book GAIA (Oxford University Press), and is also dealt with by Russell. To begin with our atmosphere was probably methane, and the early simple cells were bacteria and algae. These cells lived by photosynthesis, producing oxygen as a by-product. Oxygen was poisonous to

these bacteria and algae, then the only representatives of life on Earth's crust, but for a long time it was absorbed by the oxidising of minerals such as iron, thus keeping these organisms safe. Eventually, when all the available minerals were oxidised, life was threatened with extinction, not only from poisoning by the rising amount of oxygen in the atmosphere, but also from destruction by ultra-violet light, which had previously been vital to the creation of life. However, the extra oxygen rose to the upper atmosphere where it was converted into an ozone layer that shielded Earth from much of the ultra-violet light. By the time oxygen had accumulated in the lower atmosphere, some bacteria had developed which could tolerate it. Certain of these bacteria continued to use photosynthesis and became plants. Others developed the ability to use oxygen, giving them such effective flexibility that they went on to become animals.

Such events could be said to be a matter of chance, but Lovelock's Gaia hypothesis suggests that the biosphere of Earth is a self-regulating entity with the capacity to keep the planet healthy by controlling the chemical and physical environment. Also that the physical and chemical condition of the surface of the Earth, of the atmosphere, and of the oceans has been and continues to be made fit for life by the presence of life itself. This might be regarded as a fantastic notion, but surely it is no more remarkable than the development of human intellect.

The Gaia hypothesis is reinforced by ensuing events, explained in detail by James Lovelock, partly summarised very neatly by Peter Russell, and further summarised as follows. Throughout the history of life on Earth, the surface temperature of the planet has kept to an average between 15 and 35degC, despite drastic atmospheric changes and a 30% increase in heat from the sun. The level of salt in the oceans has remained consistently below 4%; if it had risen above 6%, even for a few minutes, life in the oceans would have ended. Ever since an oxygen atmosphere was established, the oxygen content has remained at a level of 21%; a few per cent less and many life-forms would be unable to survive (perhaps we would be unable to think, for example); a few per cent more and everything combustible would eventually burn. The presence of ammonia in the atmosphere is precisely regulated so as to keep a level of acidity in rain and soil that is optimum for life. The process of methylation recycles iodine, which is vital to the production of hormones that regulate the metabolic rate, and removes toxic substances such as mercury and arsenic from the local environment by converting them into gaseous forms. The ozone layer, already mentioned, shields us from annihilation by ultra-violet radiation.

The early development of life on planet Earth proceeded in this way: given a generally hospitable environment under the care and protection of Gaia,

simple cells united with others to become sexually reproductive, further uniting to become viable organs, then complex organisms of internally co-operative multifunctional cells. As these organisms became more complex, so did the nervous systems required to facilitate their internal functions and external activities, also the central brain required to co-ordinate them. The forms these organisms took and the habits and characteristics they acquired were partly determined by their environment, and partly by the fact that they were in competition for the food supply.

Considering the elemental building blocks of life, when chemicals came together to form macromolecules, and chains and groups of these, Russell says 'what requires to be explained is why this occurred'. It seems to me that we also have to ask the questions - why did the simple cells not remain as they were, merely content to adjust their numbers to the food supply? Why does life progress? Why do life-forms compete; is it because a compulsion to progress brings them into competition, or because the presence of competition compels them to progress? Why is there evolution of any kind, and for what reason do individual life-forms maintain and reproduce themselves? Why does Gaia sustain the biosphere with such care? I give my answers to these questions in Parts V and VI.

We humans are presently fascinated by facts. They attract us because they simply have to be accepted, whereas whole reason is a struggle because it requires more than facts. The physics and chemistry of the universe, and life, is interesting but does not yield the answers to those questions just raised. Those answers shall be found at the very end of the most significant evolutionary development, the subject of the next chapter - the advance of intelligence.

Chapter 2

ADVANCE OF INTELLIGENCE

This chapter, and the book as a whole, relies much less on conclusions drawn from established fact and more on deductive reasoning than is normal; less on that which actually exists and is accepted, more on that which ought to exist and be understood. My thinking process has never been held to a reality that is the subjective concept of consciousness contained by that reality, but an objective, outside view of reality, including a view of consciousness. In order to understand my view of evolving intelligence, the reader should be prepared, where necessary, to accept new meanings of words, such as conscious and unconscious.

Through integration of macromolecules the first life-form came into being on Earth - the single-cell creature:

Figure 1
Simple Cell

This bacterial life-form comprises three functions of such direct sequence that it can only be described as a single, relatively simple unit (complicated though it is, in fact, having several DNA molecules, thousands upon thousands of RNA and protein molecules, and many millions of smaller organic molecules) whose purpose and structure is almost exactly described by its activity. The three functions are these: (1) the cell absorbs food and converts it, by photosynthesis, into energy in order that it may absorb more food, and convert it into more energy, and so on. (2) The cell grows and, (3) in due time, with the help of its DNA, splits into two replicas of itself, thus doubling its single activity. The purpose that such single cells at first appear to be fulfilling is that of expressing energy to the optimum.

This term' expressing energy' keeps recurring in the following pages and requires some explanation. By 'expression', in this context, I mean 'to use inventively - to pursue the possible applications of energy to the limits of complex ingenuity'. As I hope to make clear, this means exploring the true possibilities until the advance of intelligence has reached the point where a form of energy, human life, has acquired the means of expressing truth - intellect.

Putting aside the question of what persuaded molecules to integrate and what gave purpose to single cells, we can imagine that once such a cell is built and programmed it and its progeny could go on indefinitely, like a perfect engine. It has no central nervous system but evidently does not need one. Absorbing food is automatic; the cell's DNA might cause it to grow and split automatically, and the whole be kept going by self-generated energy. Eventually the single-cell population would reach the point where it had out-grown its food supply, when many cells would starve to death but the rest would carry on as before, unchanging.

But this is not an ordinary cause-and-effect system. There was no purely chemical or physical cause why these cells came into being and began converting matter into energy. The same influence that caused their creation continues as the force that gives them to live. They are not ordinary systems because they represent life, impelled by this will to live. This will comes to them direct from life-force, impelling them not merely to continue unchanged but to take every opportunity to progress and improve their techniques of expressing energy. The same life-force would also be exerting itself to defend and protect its creation, both internally and in the biosphere (Gaia).

The fact that life-forms have changed and proliferated enormously points to a greater aim, beyond the purpose simply to express energy. That purpose could have been achieved by these simple cells adjusting their numbers and

habits to the available food supply, with comparatively little change and in a non-competitive way. History suggests that the greater aim, to be achieved by optimum competitive expression of energy, is to develop ever more advanced and complex life-forms.

Many of the bacteria and algae continued in simple cell form, reproducing by identical splitting, or dying and being replaced by free-floating DNA meeting suitable conditions in order continually to produce new cells. Genetic errors in reproduction, and random combinations of genes in the production of new cells, resulted in the emergence of cells with new characteristics, many of which survived. Over a period of about two thousand million years this process of change enabled life to adapt to the introduction of oxygen to the atmosphere, for instance. Today, the influenza virus can change rapidly enough to produce, each year, a new strain capable of defeating anti-bodies that were developed as rapidly the previous year to combat the old strain.

A more dramatic cause of change, which created complicated life-forms, was the integration of cells. Two or more cells joined together, forming one cell with a nucleus, a combination which increased the prospects for successful survival. This was a first step towards achieving increased efficiency by the internal co-operation of different cells and functions. Such integrated cells had the advantage that the nucleus could develop independently and, under protection from its external casing, free of direct interference from the world outside.

Advancing change was facilitated by the means of reproduction. As cells became more elaborate the effects of error and randomness in the distribution of genes became more far-reaching. Eventually, by way of natural selection, the creatures that progressed furthest and succeeded best were those which assumed female and male genders and reproduced sexually. Each offered its genes for random selection by the embryo, to which the female gave form and the male the spark of life, which then grew independently as to fundamentals but dependent on one or both parents for nourishment and guidance. Sexual reproduction foreshortened the processes of change by the cross-fertilisation of ever more intricate genetic variations.

Life's early evolution, up to the development of complete cells with a nucleus, took place in the seas over a period of of about 2300 million years. Some 1000 million years later, photosynthesising multicellular organisms - plants - had inhabited dry land, and animals followed 50 million years later. We are particularly concerned with the free-moving, intelligent higher life-forms, especially the most advanced, the human species, and features of the evolutionary process which gave us our characteristics.

The foregoing scientific information was obtained from the work of other people and their writings, particularly the books already acknowledged - James Lovelock's *Gaia* and Peter Russell's *The Awakening Earth.* Whilst acknowledging these two authors for their knowledge of science, however, I do not go along with their other reasoning, that concerned with moral rather than factual truth.

The original photosynthesising types of simple cell must have multiplied until the point was reached where all available elements which they required, once freely and abundantly present in the sea, had already been converted into energy, and newly released elements were being immediately consumed. I have already suggested that an influence to express energy is responsible for the universe and for the creation of life. It might have been expected that when life in the sea reached this balance, the photosynthesising cells producing oxygen (followed by other cells which were able to utilise that oxygen) would stabilise their numbers to coincide with the rate at which needed elements were newly released into the sea. This would be the optimum expression of energy, as things stood. But I also suggest (in Part V, Chapter 32) another influence whose objective is to advance life until it becomes aware of truth, and to which this balance of activity, in the sea, was unacceptable stagnation.

Under this second influence (which I had not intended to insist upon, since it cannot be proved, but which becomes more convincing the further my thoughts progress), certain cells, unable to accept stalemate and feeling the urge to progress, turned to the only alternative food supply - other living cells. This would seem to go contrary to the first influence (to express energy) since by one cell eating another two energy converters would be reduced to one. But the second influence, by complicating life-forms in pursuance of its objective, also served the first influence in that life was thus impelled and enabled to extend its activity onto the land and into the air.

Still confined to the sea, simple life-forms became more complicated. As food became scarcer, they had to develop means of locomotion to find it, also the ability to convert what they could get into the forms they needed to sustain themselves. As competition for this food increased, their movements and senses had to be more and more efficient if they were to survive. When cells began eating each other, survival came to depend upon being well equipped for attack and defence - skilled in competitive conflict. Measures had to be taken to attempt the protection of offspring. To illustrate once more that the object of all this activity does not seem to be purely to express energy by living, but to encourage the creation of optimum intelligence, consider a food chain in the sea. The millions of one species at the bottom of the chain feed on inorganic matter, whilst all the rest depend on this species, and each other,

for food. Apart from the supreme predators, each species has to vastly over-reproduce just to maintain numbers and survive, a seemingly pointless exercise until its objective is perceived. Suppose that every living member of this chain were to be evaluated with respect to mass and energy and totalled one million units. Then suppose that all but the lowest species were eliminated and, after a period of adjustment to life without predators, all members of that harmless species were evaluated too. It seems certain that, subject to availability of food to sustain them just at this level, they must total more than a million units. This also assumes that it was predation that kept their numbers to the previous lower level. I recognise that the populations of victims and predators normally fluctuate in inverse proportion. Victims would tend to total more because of energy retained which would have been dissipated by the various predators consuming each other, i.e. finding, killing and reproducing the same food. In terms of the mass and energy of living matter, all the predators would appear to be unnecessary, until it is noted that amongst species at the tops of food chains, and practically invulnerable to all predators except mankind, are Earth's top intelligences - whales and dolphins, for example, and humans.

The more advanced cells, with complicated nuclei, joined together into colonies, and colonies into organisms, the better to survive against competition (united we stand, divided we fall). Different colonies, in their own interests, performed locomotive, defensive or combative functions, or became direction finders and distributors for the organism, in its overall interest. All these cellular functions, the frameworks that held them together and the casings that protected them, required to be fed. There had to be many means of taking food, breaking it down into the numerous elements that the many different cells required, and providing this food, together with oxygen, to all parts as appropriate. There also had to be a nervous system, to help the organism's various functions to co-operate by passing messages to and fro.

In some sense it could be argued that all this is irrelevant; that the human race now exists, with intelligence enough to decide its future by concentrating on the future, never mind the past. But for reasons that shall become clear it is necessary to show our evolution so far to have been a sequence of random responses to growing influences. The situation it has brought us to is not a suitable springboard for further progress. Now is the time for deeply thoughtful reconsideration. Were we the ignorant children of an all-wise universe, it would be difficult for that universe to justify its long-drawn-out production of ourselves and, having brought us into being, to explain why it has not caused our rapid enlightenment. I believe, on the contrary, that we are hoped-for pioneers of enlightenment in a largely ignorant universe, but

still following the processes of random evolution, unaware that we have reached our utmost potential already.

It is again necessary to ask why - why did simple cells form nuclei and progress to such levels of complication? I have suggested before that two influences are involved, one to express energy, the other to pursue truth. Life was created and evolves under the former influence, to express energy by all possible means, and it was this that led creatures to depend on eating each other. By doing so they walked into the competitive trap. The essence of life is to succeed in living and reproducing - to survive. Once in the competitive trap, to survive means to advance, progress. To fall back, or merely stand still when competitors are advancing, is to fail. This raises a question that it is my object to answer. The first influence's purpose (to express energy) is to serve the second influence (to perfect intelligence). What happens, and what should happen, when that purpose has been served?

Success goes to those creatures best equipped for attack and defence, and this determines progress. Predators have the advantage that their food has to some extent been processed already by the creatures they eat. Life-force has been built into their every cell from the start, and is now the impulse of their nervous system. Not just the original influence to survive passively (i.e. to express energy but to progress only as far as their present limitations permit, as in the case of green plants) but the purposeful influences both to survive and advance, which only free-moving oxygen-burning creatures are capable of fulfilling. These influences, in the form of will, strongly compel all creatures to explore and progress in such ways as require ever higher intelligence. But a further question is this. When intelligence is perfected, can it overcome the will to go on competing? This is the question that humanity now faces.

The question is 'Can intelligence, once perfected, overcome the instinctive will to go on competing?', and in answering it we have to bear in mind those two influences which are involved - (1) To express energy and thus not only create life but also develop its forms and functions in every possible way, and (2) to advance the faculty of intelligence until it becomes capable of comprehending truth. This question is important in leading us to perceive (and the aim of this book is to help the reader so to perceive) that while the animal's purpose is to fulfil itself by following instinct, the true human purpose is to fulfil truth by following intellect.

Free-moving multi-cellular creatures continued to be impelled by the force of will, derived from the two influences defined above, but also now had a nervous system, a simple kind of intelligence for transforming vital need into effective action. As these creatures became more complicated, so their

nervous systems became more intricate, making it necessary to set up a central co-ordination of this system, the brain, so that functions could be performed in efficient sequence. Logically, the brain should also contain the force that impels the whole organism, the will. But the whole creature is a collection of individual cells, each with its own function, with knowledge of that function alone and the will to perform it. Yet each cell has also a sense of corporate purpose for the common interest; this was what brought it to join a colony and brought the colony to join an organism. Each cell gives up a degree of independence, restricting its activity and its reproduction to the common interest, repelling invading bacteria and viruses and helping to keep the whole body healthy. In return the parent body feeds the cells and mobilises aid when they come under attack or suffer injury.

So all the organism's many cells contribute a portion of their influence and independence to its will, to the combined strength of the organism's independence and influence to which they all submit in return for its patronage. Such creatures have passed through a period of random change in the vital pursuit of competitive success. They have developed means of sustaining and reproducing themselves that secure their survival. Having now a brain, with a strong will in command, they are in a position to experiment with further changes. But random change might well endanger survival. There is a need to establish the success already achieved and to make it secure. The very determination of an organism's will to have its functions continue performing exactly in the manner which had already proved successful caused it to impose upon itself a pattern of behaviour which it then became the predominant will of the organism strictly to observe. This pattern of behaviour is known as instinct.

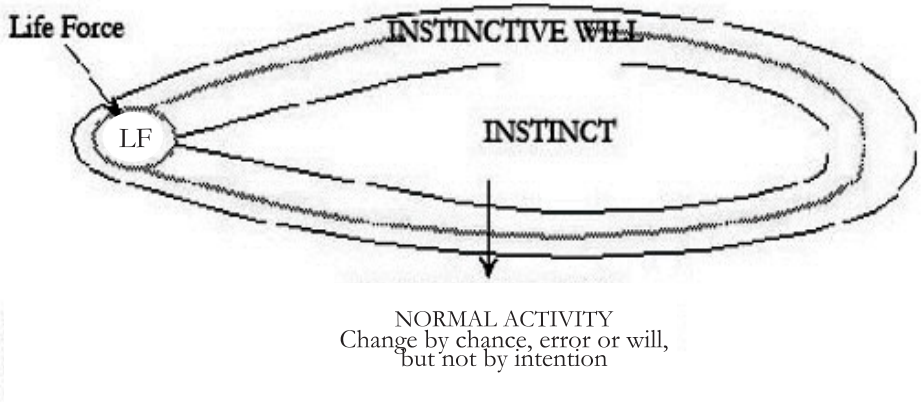

Figure 2
Symbolising Brain of Cellular Organism

Instinct is a governing programme, embodying means of impelling and inhibiting a creature's behaviour in the related interests of its many cells, itself, and its species. It is easy enough to comprehend that animal life is dependently subject to instinct but not so easy to understand why. It is vital that we do understand this, because our present problems are the result of our misunderstanding of that which impels us. Our instincts were genetically laid down - strongly imprinted over a very long time. Many are essential, and some harmless. But many others are dangerous, and although these ought to be outmoded our society remains such that we constantly revert to them. Perhaps these undesirable instincts can never be erased, only overlaid. We have to learn how to make them so completely redundant that we never again need them and can never again call them up.

Figure 2 represents the central, controlling nucleus of the multi-cellular creature - the brain - the being's essence, or self. The creature is identifiable, to an outside observer, as a set of physical characteristics, and by its familiar pattern of behaviour that is animated by feelings conveyed by its nervous system. Its self is aware but is not yet capable of self-awareness. Nor is this self independent or autonomous. It is a series of strict and entirely predictable responses to instinctive instructions, powered by the original life-force will to survive and reproduce, which encapsulate the creature and operate through its instinct. This may be changed only by genetic mutation brought about by accident or chance, capitalised by will, but not by intention.

However, although locked into a fixed programme of behaviour that forbade any other avenue of change, most of these creatures followed a path which enabled them to change dramatically. Before they had any means of foreseeing or planning the future, they progressed to advantage. One reason is this; that whilst one part of instinctive will is to obey the letter of instinct, and so prohibit change, the other part is to reflect the spirit of instinct which is to try and change for the better. Another reason is that instinct dictates the behaviour of the organism as an individual whole, but the individual cells that make up the organism have no instinct. Simply obeying instructions from the organism's brain, they co-operate to ensure that the organism functions successfully because their welfare is synonymous with the well-being of the whole. But simple cells also respond to the spirit of instinctive will, and are free to experiment with mutations which can be adopted, or rejected like a disease or cancer, by the ordinary process of natural selection, without in any way compromising the security of overall instinct.

Before the formation of its instinct the situation of the multi-cellular organism was very subtle. Its needs were those of its component single cells and cell colonies; it had no independent needs. Its will was partly that of its cells and partly that which they gave it to protect their interests, so that it had

force of will before it had acquired its own individual interests. These interests, as well as those of its component cells, were catered for by its completed instinct that became the vehicle of its individual will.

It has to be considered how instinct came to be established. There being nothing capable of working it out or applying it, instinct must have created itself. In principle it is related to the universal cycle of 'explosion and implosion', birth and death. Instinct is a programme made up of extreme impulsions and inhibitions, established by progressive selection as an average between extremes, which constitutes a continual expression of energy, and is proved by experience to secure successful survival. The programme of action and reaction is imposed by way of emotions that have been brought forward from experience resulting from past behaviour, and made into anticipatory feelings that guide present behaviour.

For example, hunger is a pain accompanied by anticipated pleasure, and these are relieved or fulfilled by eating; sexuality is a desire accompanied by anticipated pleasure, and these are fulfilled by the sexual act. Animals neither eat because they know their bodies need food nor copulate because that is necessary to securing the future of their species. They obey the impulsions and inhibitions of instinct, a kind of knowledge automatically calculated from past experience as a series of emotional "do's" and "don'ts", which is quite unaware of the future and unable to predict or prepare for it, and which is supposed to be locked away from a creature's voluntary interference and to prohibit any contrary behaviour.

Whilst a creature was developing, the will, random mutations, and progressive selection played their parts. The objective was survival success, and by the time this objective had been achieved every feature of the creature's behaviour was secured by its instinct to ensure that its success would be maintained. The creature's 'self-will' became increasingly identified with the centralised brain containing the letter of instinct; resistant to and impatient of the body's independent experimental mutations, which were faster than error or chance but still too slow and uncertain. There was a growing sense of mounting competition, an awareness of the vital need to progress faster if only to keep abreast, a sense that the brain should not be dominated by instinct but should have its own means of modifying and manipulating instinct and, consequently, a more direct influence on progressive mutation.

So fixed instinct became representative of stagnation and the danger of extinction. But it would be equally dangerous to throw open instinct to random change, tossing away the security which had taken so much time and effort to build. There had to be some means of voluntarily experimenting with possible changes without disturbing the status quo. This means was the

preconscious, whose gradual development is shown in Figure 3, stages A, B, and C.

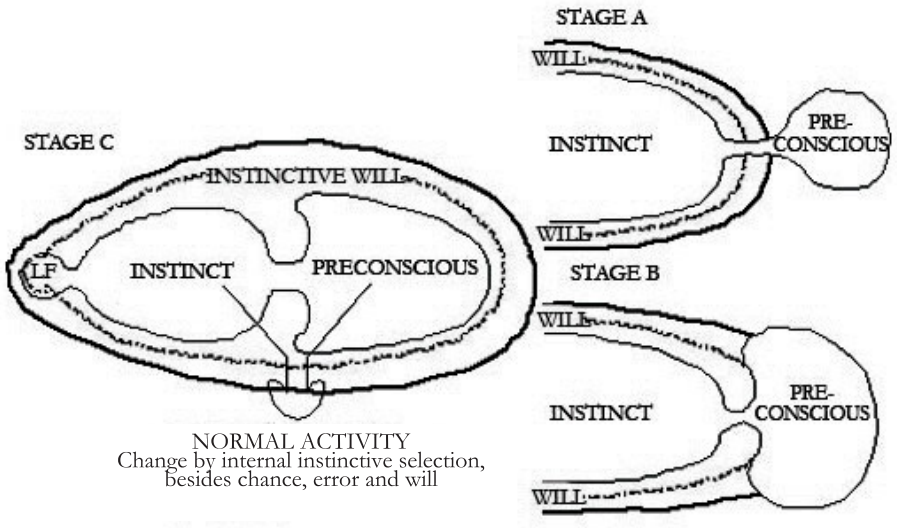

Figure 3
Symbolising Brain Transition From Cellular to Multi-Cellular Organism

The preconscious would have begun as a small extension of the cells which contained and administered instinct, formed outside the encapsulation of instinctive will (Stage A). This allowed a small degree of anticipation, a crude kind of thought, free of instinct but without danger, once Stage C was reached, because instinctive will was again firmly in control of the brain and of the creature's every activity, with no new move being possible without its permission. So this preconscious faculty served life-force will, but its relative freedom allowed it sometimes to by-pass a slight inhibition and lean towards a simple advantageous change. The will could then give this proposal independent trials. If the change proved a failure it would be dismissed, but if it proved advantageous it would be adopted as part of instinct in place of previous practice, and the old inhibition that would have forbidden this change would be rejected and a new inhibition brought in to secure it. Multi-cellular organisms had abilities and characteristics arrived at by natural selection. Preconsciousness allowed them to speed up the acquisition of new habits that had survival value. For example, in a creature whose instinct was always to move forwards, the preconscious might sense the possibility of going backwards also and, one day, might cause this to happen. Such a break in habit would be painful at first, but it would be incorporated with instinct when found to be advantageous. Chance or random experiment could have produced the same result, but that is uncertain and could have taken very much longer. Such changes in the habits of organisms that were to become

advanced life-forms, as they diversified, sometimes required complex physiological changes. It seems to me inconceivable that such changes could have occurred without the aid of the preconscious faculty, which implies that this faculty must have developed very early in the evolution of such organisms.

It took very roughly 1300 million years (the figures here quoted are approximate - when dealing with such huge time spans accuracy is hardly significant) for the first form of life created, the simple cell, to develop into the complicated single cell with nucleus; about 500 million further years for simple multicellular organisms to develop; and another 400 million years or so for complex multicellular organisms such as molluscs to emerge. This was progress by means of mutations due to chance, error, will, then preconsciousness. This progress required the development of the nervous system, and its gradual acceleration was facilitated by the advancing efficacy of that system. Viewed differently, Earth history could be said to be that of the development of intelligence, of which physical life is but the incidental vehicle. The potential perfection of intelligence was achieved when humanity appeared. From then on perhaps there was no need for life to progress further. Maybe if that potential were released all life would settle down to a state of stable continuation. In the present interim, with our intelligence far from being perfected, it is certain that, on the contrary, advanced life-forms on Earth are gradually declining and under threat of extinction.

It appears that after about 2950 million years of life on Earth, and another 150 million years in which plants colonised dry land - that is to say about 400 million years ago - the approximate situation of our ancestral complex multi-cellular organisms, as they began developing into animals (prior to colonising dry land over the next 50 million years), was this. They had some form of nervous system and a rudimentary brain. Overall they were impelled by life-force, represented by will, and subject to competitive conflict, which combined to cause progress. Physiologically they had come to be represented by instinct that contained and guarded all the characteristic habits randomly acquired and naturally selected. Now they also had a preconscious faculty that enabled them to bring about beneficial changes of instinctive habit by a rudimentary kind of self-determination which could be described as *intention*.

Physiologically, complex multicellular organisms were represented by their bodily form, similarly evolved by mutations and natural selection, capitalised on by will. The pattern of a creature's physical organs and functions was recorded, guarded and passed on by genes. There was competitive pressure on these patterns to change also, for a dramatic change of habit often required a new or re-shaped organ. The genes had always been vehicles of mutation, by way of chance or error altering or omitting instructions or re-arranging their sequence at the time of regeneration. Until now mutations

had been subject to simple natural selection. If a certain mutation was of immediate benefit to the creature inheriting it, in that it survived better than its fellows, that creature would be preferred and its descendants would come to predominate the species. Mutations of no immediate benefit would not be preferred, and those that were a hindrance would quickly die out. This meant that no dramatic changes which were vital to survival were likely to occur, for if such a change required to be built in stages, some stages, being of no apparent benefit, would not be preferred, and even if none of the stages actually died out, no single creature would inherit them all in sequence in order to develop the mutation in full. To expect a complex mutation to occur in one regeneration, complete in every respect and therefore immediately effective, is like expecting not only that the concept of time and all the separate parts of a watch should come into existence at once but also that those parts, thrown together at random (after any number of millions of attempts), would fall into place as a complete working watch, which its owner straight away used to tell the time.

The fact is that extremely complex organs *were* developed and perfected. It is obvious that this took some time, although it has now been discovered that evolution occurred in jerks; quite big changes have been accomplished in as little as a thousand years. I have already suggested that a major essential element of mutation is the intervention of will, the impulsion to live felt by every cell in an organism combined into the whole will of the organism progressively to improve its method of living. There seems to be another possible explanation of evolution that combines strength of will and subconscious intention in another way. Take the example of the stick insect. It is extremely unlikely that it emerged from one single complete mutation. It is equally unlikely that each separate feature was formed by chance at different times. But suppose that the original creature, at the pre-stick-insect stage, was so desirous of becoming identified with the safe and secure twigs it lived on, so escaping the notice of predators, that the cell-aligning, twig-forming influence was somehow passed from the tree to the insect genes, the latter possibly having already ingested materials suitable for its reconstruction in twig-form by eating parts of the tree.

I am certain that no amount of time or blind strength of will could produce a pair of eyes, with all the systems to go with them. This required the preconscious faculty, once it had become fairly well developed (Stage C, Figure 3), to give the overall will some concept of sight and its value. This would be passed to cells at the front end of the creature, directing and urging their effort towards realising that concept, however vague it might be at first. The more progress was made the more clear the concept would become, so that directions could be made ever more precise and coordinated, and progress would accelerate.

Concerning the creation of eyesight, it can be appreciated that cells at the front end of a creature which let in light have a potential direction-finding value, so that if they occurred by chance mutation they would give an immediate advantage, but only if there were means of interpretation which enabled the creature to use this potential. Without these means the light-cells would have no advantage and would not be preferred, so the means of interpretation must come first. But such means, without anything to interpret, even if they could have been constructed by chance, would have no immediate value for survival.

Yet such embryo faculties could have a value that was evident to the preconscious. It is possible that creature Z might build up an internal means of picturing shapes and directions from knowledge of creature X, its preferred prey. This means would convey information about X's shape through sensors in Z's mouth and throat, and about X's orientation by feelings conveyed through Z's hairs, feelers and legs, spread out in every direction. It is possible to ascribe this development to the process of chance natural selection, but to co-ordinate it and hold it together required strength of purpose given by the developing preconscious.

I understand that the nuclei of the common cells of our bodies, such as those of the skin, contain all the genetic instructions required for the building of our whole organism. Also that the genes of many animals, including humans, contain a small separate element that is common to all. This suggests to me that they all derive from a remote common ancestor. If a nucleus derived from one animal is inserted into the ovum of a similar animal (in some cases a different animal), a complete reproduction of the former will grow from it. This is because the ovum contains all the chemical compounds needed to activate all parts of the genetic chain of the nucleus, in correct sequence, and because the ovum is situated in the appropriate place - the womb. This reproduction begins as a process of cell division, and presumably goes on to a procedure whereby the different chemical compounds are conducted to appropriate parts of the embryo, where they will begin activating specific instructions in common cells to begin construction of particular organs in their correct positions. As the embryo grows and matures many more evolved procedures are triggered which pull the whole together as a working creature.

By imagining evolution going into reverse we can see how this process was gradually built up, but also that each complex organ, like the eye, must have had a beginning. For instance, we have some primitive marine creature to thank for our eyes. They have been much modified by subsequent evolution, but the original eyes and their genetic pattern must have been devised by that primitive creature alone. Perhaps it happened in this way. Sensing the need of a means of seeing - a new faculty - it procured and deposited at its front end

a new chemical compound, new in the sense that this creature had never used it before so that none of its existing cells could be activated by it or live in or on it. Maybe a series of cells were newly created in this chemical soup and, after many abortive experiments, like cancers, certain cell types would emerge which were in tune with the creature's sense of desire for sight, and which the creature's will would then protect, nourish, and its genes regenerate. And these new cells, in turn, would serve the will by activating new growth, always aimed in a purposeful direction whose ultimate achievement would be the construction of a pair of eyes.

When these subtle actions, reactions and interactions of energy, through genes, nuclei, cells and chemical compounds, are considered, together with the fact that the impelling life-force will and controlling instinct had extended and connected itself to all organs by way of the nervous system, it can be appreciated that there was relentless pressure and enormous potential for progressive change. We tend to be fascinated by all these processes. Yet when it becomes known, evolution appears as a series of mechanically logical steps. This is made clear by microscopic photography of muscular cells pulling the head-features of an embryo into position, and a computer simulation of the simple contraction and severance of cells producing the beginnings of the lens and retina of the eye. Again, the sorts of questions that ought to exercise our thought are 'why does all this happen?' - 'to what end?'

The answers to these questions are to be found in, and by, the end-product of all life's development on Earth - the human mind. Today we use, or misuse, our eyes though we might have no idea how or why they were developed. We can learn how our eyes developed by understanding that life's microparticles and microprocesses can be influenced by the will, producing macro-changes. We can also learn precisely how our eyesight now works by studying its entire mechanism in greatest detail. But this leaves unanswered the question why, and to what end, which is the ultimate aim of this book to answer. This aim includes a vital human objective; to show that just as some primitive subconscious creature sensed the needed value of sight, so do we sense the need to discover truth; and just as it was able actually to achieve its vague intention, so we, with our far superior faculties, are able to achieve *our* dream of a better world.

The centre of self gradually moved from instinct into the preconscious, but it was a slight shift because the preconscious faculty was still tied closely to instinct, the capacity of its cells and interconnections necessarily pitched at a certain low level, which disallowed any calculation not in the direct interest of instinct. This faculty grew larger the further creatures developed, and was progressively encapsulated by instinctive will. It took over many functions of the body, as an extension of instinct, functions whose actions, to our

subsequent consciousness, mostly take place subconsciously. Perhaps the preconscious could be described as looking outwards from a platform of instinctive intelligence, but quite without ability to view the self from outside, or to look critically at instinct, or in any way to break instinctive bonds, only to extend them.

We are now concerned with the most advanced animal life-forms, those which had developed the senses of sight, smell, hearing and touch, and which had utilised these to secure successful survival by way of an efficient array of instincts. Where nothing seriously threatened this success it would appear that instinctive will completely encapsulated the preconscious (Stage C, Figure 3) as would seem to be the case with the crocodile for example, sealing it off from further mutation so that it continued unchanged, maybe for many millions of years. But where serious threats to survival did arise, such animals (dodo's for instance), unable to adapt by way of some appropriate mutation of form or habit, became extinct.

It seems to me that if any creature is to go beyond the Stage C preconscious state it must have developed all the vital senses. From the viewpoint of the influence to express energy, a fully developed preconsciously instinctive animal that survives without any further change, such as the crocodile might be, is a success whilst those who die out are failures. From the viewpoint of the influence to grasp all life's opportunities to advance, however, the crocodile too is a failure. From the latter point of view, fixed preconsciousness is stagnation, like instinct, a state which could have been achieved by single cells continuing unchanged, without need of life progressing further. The fact seems to be that most animals did progress to the next stage of brain development.

Consciousness

In the following I continue with my deductions from basic knowledge of the past and observation of the present with the object of showing that vital reform is our voluntary responsibility. The conscious faculty appears to have started in the same way as the preconscious - as a dramatic extension of the brain in response to some threat to survival. The animal concerned already possessed all the vital senses given by a brain and nervous system which, though they had served it well in the past, were encapsulated by instinctive will. A separate faculty was needed, with a will of its own, a faculty which did not contradict instinct and understood it, but was not rigidly bound by it.

The early conscious faculty independently observed the outside world, as far as its capacity allowed, and occasionally made decisions which overrode or redirected the animal's tried and proved instinctive inhibitions and drives yet

were shown to be in its best interests. This animal, for example, might consciously realise that it need no longer run away from another species of animal which it had long instinctively feared and, by standing up to its enemy, defeat it. As another example, take a small bird with a 2cm long beak, trying to reach grubs that commonly live in 4cm deep cavities. The purely instinctive bird (if such were possible) would give up, but one day, perhaps after many thousands of years, a freak bird would be born with a 4cm long beak and, succeeding much better, would eventually represent the species. The preconscious bird would concentrate its will on beak growth and, perhaps after a thousand years or so, might also achieve a 4cm long beak. The conscious bird could achieve the objective within one generation, and without physiological change, by simple reasoning - by teaching itself to dig out the grubs with a thorn or splinter of wood that effectively extended its beak to the required length.

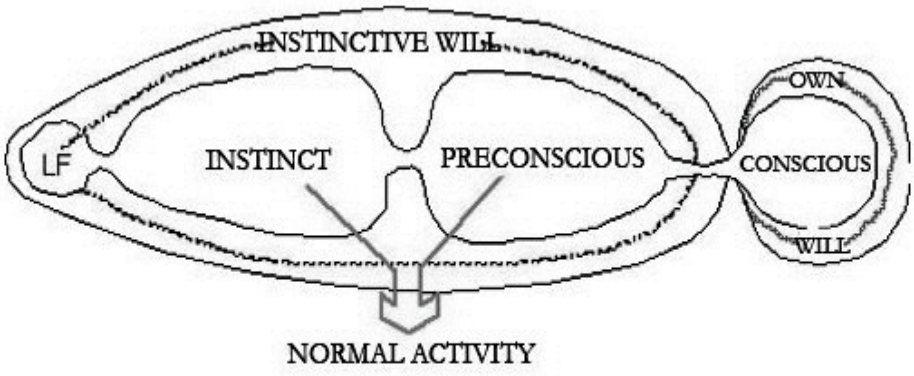

Figure 4a
The Dawn of Consciousness

As the conscious faculty went on growing, the 'self' of the animal began to pass from the preconscious to the conscious and it might appear, for the first time, to have gained freedom from its instinctive bonds.

This was the only way forward for an animal otherwise rigidly restricted by instinct, yet it seems to present dangers by going contrary to the life-force purpose, represented by instinct. But whilst the conscious was relatively independent and self-willed, instinct, to the same degree, was independent of consciousness, and instinct unconsciously controlled most bodily functions; also, subconsciously, most physical activity. True, consciousness could override some instinct and itself cause physical activity, but instinct promoted its own interests by subjecting the conscious to emotions and fears that were hard or impossible to override.

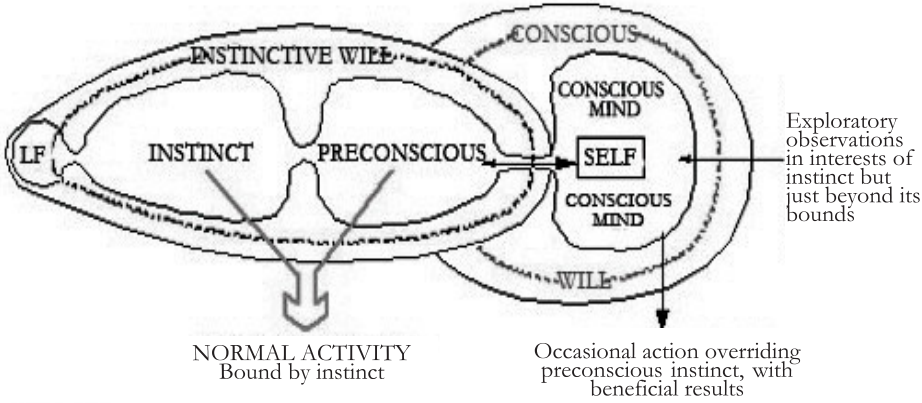

Figure 4b
Early Consciousness

Furthermore the animal, though conscious, was as yet unaware of any but its own 'reasons' for existing. When early consciousness looked inward, as far as it was able, it did not see itself; it saw the animal's instinctive preconsciousness. When it looked outward it saw an interesting world, but the mainspring of its interest was the whole animal's instinct. Yet consciousness was the true beginning of thought, in that it had the potential for evaluating the animal's interests and giving preference to certain of them in order to perfect its way of life.

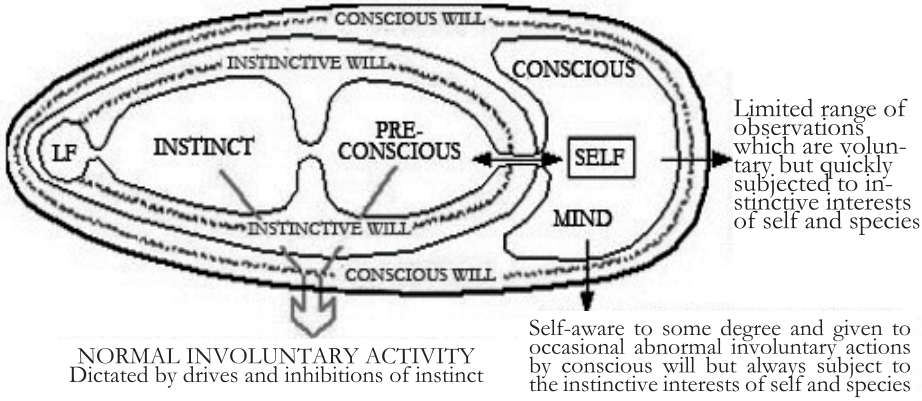

Figure 4c
Average Consciousness

Consciousness, then, is the innate knowledge of instinct made available to the 'self ' and an enlarged knowledge of the world made available to instinct - the opening of awareness to a share in the understanding and responsibility of instinct, previously locked away and imposed by remote control for the sake of security. The fundamental reason for consciousness being developed, whatever actually caused it, was the survival need of a creature to develop further. Thereafter, consciousness grew not only for practical purposes but for reasons of its own, and this seems to me to mark a partial and potential shift from the influence to express energy to that which persuades life to grasp all opportunities for progressive change - the influence for truth.

This next stage in the development of the conscious (Figure 4C) shows it to be much enlarged, and conscious will enveloping the whole animal, i.e. its brain. In this way the animal's progress into the future would be steered by its most advanced faculty, but the bulk of its activity would remain the established responsibility of instinct, encapsulated by *its* will. There would be exchanges of influence between preconscious instinct and consciousness, and mutations or changes of habit could still occur randomly, or by intention of the former, or by strongly willed intention of the latter. The animal's self was now firmly in its conscious, vaguely seeing as well as feeling itself to be its range of habits and emotions and the centre of its observed world but quite unable to see, or to be critically aware of, its true conscious self.

At this stage the conscious faculty was capable of deeper reason than that embraced by standard instinct, and it introduced subtle variations in behaviour patterns that seemed immediately to benefit the animal concerned, for instance the chimpanzee's ability to deceive. Happiness is a state of fulfilment of purpose and faculties and this now depends on consciousness, as well as preconscious instinct, being fulfilled. The wolf species is an example of consciousness disciplining some instincts and enhancing others for the sake of happy survival in the most adverse arctic conditions. The wolf pack is led by a female and breeding is strictly limited in order to match numbers to a usually scarce supply of food. This, together with almost self-sacrificing care, affection and disciplined comradeship, makes the wolf a most satisfactory animal in that it seems to have achieved a balance between harsh circumstances and self-generated compensations. Yet because it is a delicate balance, not to be disturbed without risk, the wolf resists change.

Wolves must have developed their consciousness out of dire necessity and, having succeeded, have taken it no further. The chimpanzees, having reached a similar stage of consciousness, are a very different case. Living in the lush jungles of Central Africa, they appear to have achieved survival success very easily, leaving time to spare. They developed curiosity, helped by the dexterity of their hands, which in turn encouraged mental adroitness and led to further

curiosity. This combination is a fast and most effective means of mental enhancement, and it is judged to have been an ape of this kind that engendered the pre-human species. Curiosity is the turning of spare time and energy to observing and investigating without necessity, for its own sake. This led chimps and then pre-humans to changes of habit which then became instinctive or learned features of life and survival, changes which had not derived from strict necessity but from intelligence, becoming *developed* needs rather than original or basic needs.

The effect that the conscious had on different species of animal depended upon its capacity, and the extent to which its capacity grew depended upon the degree to which it was stimulated. In the building of instinct, in some animals the combative element had come to dominate character - the predators - and others took passive roles - the victims - but all the successful ones learned to moderate their characteristics and adapt for survival. Similar influences affected the nature of conscious growth, but consciousness continued growing in various directions which were not always helpful to survival but which did encourage further mental progress.

Some seventy million years ago it seems that Earth was well populated by advanced animals and mostly covered with vigorous plant life. As a logical outcome of the practice of animals eating each other, very large predators once existed which were capable of killing any other animal. Perhaps in time such predators had made themselves extinct, because of over-killing or for other reasons, and a balance had been established between predators and prey. Another logical outcome of animals eating plants would be enormous creatures with huge appetites, not vulnerable to any predator. Such animals did exist - dinosaurs and the like - and might likewise have become extinct through over-eating, also from trampling the vegetation. In the event the dinosaurs fell victim to a major mass extinction, probably caused by a huge meteorite colliding with Earth, raising worldwide dust clouds that created a prolonged winter that they failed to survive. No doubt there is a link between this event and the presence in the sea, some ten million years later, of even larger animals, whales, which had returned to the sea from dry land.

The human is evidently the only species of life on Earth yet to achieve a brain capacity capable of independent optimum knowing and reasoning, or intellect. There is some dispute about this because certain small-toothed whales (odintocetes) - dolphins and porpoises - have brains as large or much larger than ours. However, as S.H. Ridgway points out in Research on Dolphins by H.M. Bryden and Richard Harrison (Clarendon Press Oxford 1986), the integrative and analytical capabilities of brains are a matter of quality rather than quantity; of level rather than volume. Yet when brain weight is compared with body weight or length, it appears that the greater the

size of an animal the larger the quantity of brain cells required (although there are variations in brain size in whale species of similar weight). This would explain the large brain size of the non-intellectual elephant, compared with the human. The large brain is not necessarily an advanced brain, but may be required solely for the motor, auditory, visual and somatosensory functions of large animals. Of course, huge numbers of extra cells are required for the intellectual faculty of the relatively small human species, and when brain weights are compared with the weight of the spinal chord, fishes show less brain than chord, cats a ratio of 4 or 5 to 1, apes 8 to 1, Tursops (a genus of dolphin) 40 to 1, and mankind 50 to 1. Various other relationships such as brain size to maternal metabolic turnover (Martin 1981) appear to confirm these comparisons.

As well as relative size, the comparative construction of cortexes suggests the level of intelligence. However, to judge whether any other animal has also reached the human level of potential intellect, we need only to judge its circumstantial behaviour. It seems to me that all creatures but one require and use their every brain cell because their brains are geared to natural instinctive reality. The exception is the human species with a brain, as we shall see, of large capacity whose potential we have not yet realised. I judge dolphins to have risen no higher than the conscious level (to use my own system of comparison) on the grounds that if they possessed the faculty of intellect would not they, if only indirectly, by their observed behaviour, have demonstrated it to us by now? Had they been as intelligent, or more so than we, whales at any rate, because of the way we have treated them, would surely have attempted to communicate with us. By communicate I mean more than benign fellow-feeling (of which dogs and horses are also capable); I refer to intellectual exchange. The power of intellect allows a choice to be made from all possible modes of behaviour, as we know well. Whale and dolphin behaviour indicates to me that they have little choice and cannot themselves conceive of any fundamentally different way to behave.

Whales and dolphins are animals that once lived on land but returned to the sea about sixty million years ago. They had to overcome the tremendous problems this entailed, but since becoming biologically adapted to their aquatic environment they have had a long time to perfect this way of life. They have had the relative ease of almost weightless movement, with wide-ranging freedom to explore the open seas, little or nothing to fear from predators, and unaffected by catastrophes which caused regular mass extinctions on land. Knowing where to find food at different times and over large distances requires intelligence and skill but, when the food is plentiful and there is no fierce competition, does not require the aggressive drives of instinct. It seems to me that these animals were so easily successful that they

were able to concentrate on developing the benign instincts - the rewards and satisfactions of care and compassion - and to allow the aggressive drives to fade away. Dolphins are in some danger from predators, but I imagine that in their element, like us in ours, they are so skilled and superior in intelligence as to be at minimum risk and not to feel threatened. The human threat, to whales in particular, is so comparatively recent that perhaps they have not had time consciously to adjust to it in order to make any kind of response.

Almost certainly dolphins have the largest conscious capacity of any species of animal, including the human. When these animals returned to the sea they already had a fairly well developed (if relatively primitive) brain that had evolved to suit their life on land. They not only had to adapt its existing systems to changed functions but also to create new systems to serve entirely new functions appropriate to the aquatic environment, so their brains developed in a different way from the brains of land animals (see Fig.5). They had to perfect capacities for pulmonary breathing, thermal insulation, procreation and birth in water, and techniques of swimming, communication, hunting and deep diving, with all the intricate biological complications that these things involve. All this could only have been accomplished by an almost entirely unsuitable land instinct giving up its responsibility for survival to a rapidly-grown, very large conscious faculty, which established its own alternative to the old preconscious instinct, i.e. a new conscious relationship with an equally new subconsciously automatic pattern of behaviour. It seems to me that all these must have been voluntary mutations brought about by conscious intention of the conscious will. The dolphin brain appears to have taken 40 million years to perfect, but since the species has succeeded, its original transformation to a reasonably viable aquatic animal must have been abnormally rapid in terms of evolution. It was faced with the sudden need to adapt or replace a pattern of instinct and nervous system which, together with their associated bodily functions, were largely redundant. This must have been done almost immediately as to fundamentals, then perfected without basic change.

It is presumed that, as land animals, the dolphin's ancestors were already high in the competitive life-hierarchy and, psychologically, did not have to rise in the hierarchy to gain their new position. This voluntary mutation could be accomplished only by a massive increase in the number of cells in the conscious faculty and by co-operative behaviour of that mass of cells within this, the only faculty capable of working for the species' survival.

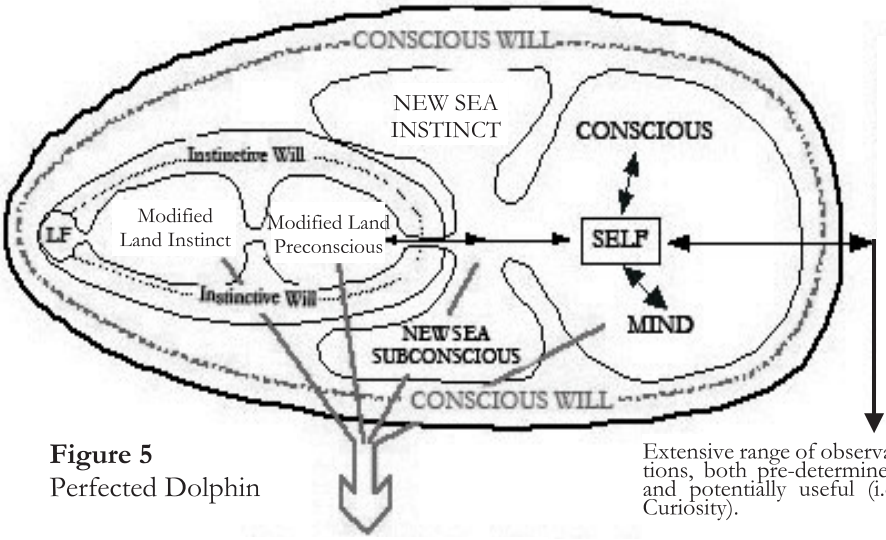

Figure 5
Perfected Dolphin

Long-established, well-entrenched, advanced, and until very recently very successful co-ordination of instinctive, preconscious, subconscious and conscious faculties, governing all motor functions

Extensive range of observations, both pre-determined and potentially useful (i.e. Curiosity).

Also play, and exercises of emotion and intelligence comparable to musical performance.

This oneness of dolphin brain development, where there was co-operation within the whole conscious faculty instead of interplay between different levels (as in the human case,) seems to be confirmed by the monotonous, almost undifferentiated structure of the dolphin neocortex. That the species has continued successfully, when this lack of interplay seems to make further changes practically impossible, must be because life in the sea is stable compared with life on land and does not require continual significant change. This seems to be confirmed by the fact that the dolphin brain, whose neocortex is as convoluted as that of the human brain, but half its thickness, has not changed for twenty million years. In my view this means not only that dolphins have not achieved intellectual capacity but they are not advancing towards it either, nor likely to do so.

Our feeling that dolphin intelligence is on a par with our own seems due to their long history of friendliness towards, and interests in, man. This feeling has recently come to include whales as we have learned more about them. We know that these two kinds of creature demonstrate good humour and tenderness in their relationships, and we have heard the haunting underwater song by which they communicate over great distances. Protest against the killing of whales is widespread and our feeling for them is enhanced by the mystery of life under the oceans. It is well to realise that dolphins and small whales are themselves practised predators. I think we should also admit that if they were as intelligent as we the fact would be much more evident. The

intellectual faculty cannot be contained by, so as to be solely devoted to, practical and emotional matters of survival. It must spill out into extraordinary expression that there is no mistaking - in art, music, or the expounding of ideas. Otherwise the faculty will be utilised by instinct, as is the case with ourselves, to further competitive drives, fulfil ambition, express aggression. None of these things is clearly evident in the behaviour of dolphins and whales.

We might think that the behaviour of captive dolphins in marinas exhibits a human level of intelligence. They can be taught to carry out quite difficult tasks, or perform clever tricks that do undoubtedly require good intelligence. But remember that horses, monkeys, dogs, parrots and even fleas can be similarly taught. These performances depend upon a close human presence, like the strong-willed hypnotist taking the initiative with submissive subjects, and/or upon some kind of reward system. To test whether it is an accurate indication of intellect, put yourself in the dolphin's position. Surely the most gentle of humans would object strongly to being captured and denied freedom by aliens, however 'friendly', and put on display. Would any but the mentally deficient human then condescend to do tricks? And what would we think of our captors who, believing us to be as intelligent as they supposed themselves to be, nevertheless subjected us to these indignities?

It does not seem to strike us that the gentle and caring characteristics of dolphins and whales, which attract us to them, reflect our repressed inner selves. It is not such gentleness but the high-handed way we patronise dolphins, and the cruelly commercial way in which we still treat whales (in some areas), which represents the public human character. It could be said that dolphins and whales are sensibly in optimum harmony with their environment because they have not achieved our intellectual level, whilst we are destructively oppressive because we have. In this light it might then be claimed that it is we who are backward and they who have actually fulfilled the potential of our intellectual level. But again, if they had would they be willing to take part in circus trickery? In fact it is we humans who are of the highest order of intellectual and therefore moral potential and, erroneously thinking that they are too, we have even less justification for capturing, displaying and breeding dolphins. In truth we can only explain our attitude by admitting that we are yet far from fulfilling that potential.

I have brought this matter up because to question whether dolphins or whales possess high intelligence leads us to question the nature of high intelligence. In attempting to judge the intelligence-level of dolphins from evidence of their behaviour, we may be led to judge whether our own behaviour is a true reflection or a betrayal of our own intellectual capacity.

By understanding the moral virtues which limited consciousness can aspire to, as exemplified by the dolphin, we shall come nearer to understanding the responsibilities of unlimited intellect.

There is no doubt in my mind that human intellect as a whole is yet in its infancy. Even so, an outside observer of this planet could be left in no doubt, from the evidence of our unreasonable, self-destructive and bizarre behaviour, that although we have not fulfilled intellect (this concept is explored fully in Part III) we clearly possess its powers. Dolphins are biologically highly complex but, I repeat, there is nothing in their behaviour to suggest mental achievement beyond advanced instinctive consciousness. The reason must be that they never had to face a challenge that their conscious faculty could not meet - they were never threatened with such catastrophe that if they did not acquire an additional mental level, with the ability to look critically at themselves and their ways in order to change them, they would die out.

Apefolk

To return to the land animals of about three million years ago: the self was situated in a relatively small conscious faculty - see Fig. 4C - and behaviour was almost entirely dictated by instinct, periodically enhanced by explorations of consciousness. These explorations were carried furthest by apes, such as chimpanzees, by way of curiosity aided by the beginnings of manual dexterity. One particular ape advanced in curiosity much the furthest, breaking instinctive bonds and enlarging its conscious faculty beyond the point of no return, a point where control of its being passed from an instinctive body, aided by the conscious self, to the conscious self leading the instinctive body. These advanced apes were our predecessors, whom I shall call the apefolk.

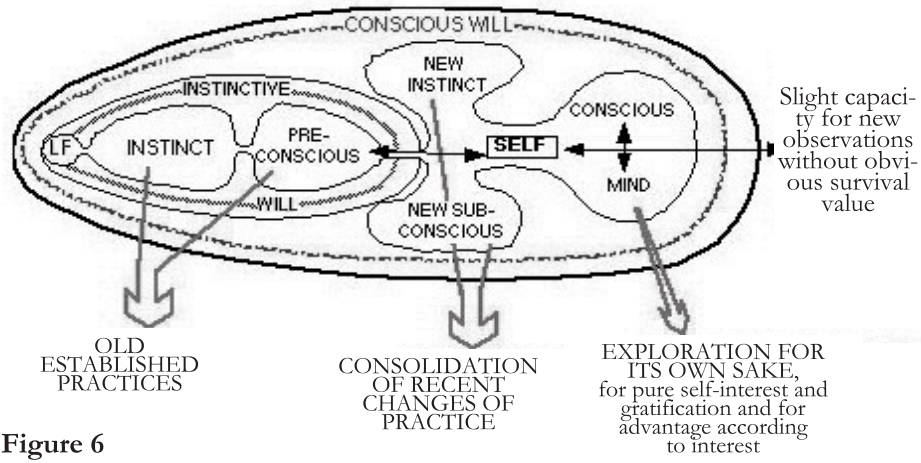

Figure 6
Apefolk Brain

(Note to the reader: In this Chapter, and elsewhere, the author's information is as much based upon deeply reasoned deduction as strictly factual. It is not intended to build knowledge but to broaden and stimulate fully correlated thinking)

As the apefolk learned from new observations, and calculated certain alternative ways of achieving instinctive aims, occasionally taking the risk of breaking old taboos, they slowly progressed by trial and error. To begin with, their brains would be as shown in Figure 4C, but towards the end of their era, after about three million years, I imagine the picture to be more like Figure 6.

Life-forms had always advanced cautiously with one foot, leaving the other firmly planted in instinct. The apefolk seemed sometimes to jump recklessly forward with both feet. But they were not leaping into darkness because life-force impulsion was still the guiding force of their life, and although it was their consciousness that actually decided to make the jump, the source of that decision, and the experience on which it was calculated, was predominantly instinctive.

Consciousness in some sense freed itself from instinct, yet it was still anchored to the same basic exclusive interest that was served by instinct - self-survival. The conscious will pursued this interest exclusively because it was not so equipped as to be aware of any other. Obeying evolved instinct to the letter had once been vital to securing survival. But instinct had imperfections, and consciousness was able to improve on it, purposely rather than by chance, the better to serve self-interest. Previously, subconscious instinct had curbed the new conscious faculty by subjecting it to emotions - attractions and fears too strong to be overcome. Now the fulfilment of advanced consciousness became an emotional necessity, as well as the fulfilment of instinct, making the overcoming of some fears and the breakdown of some inhibitions not only possible but essential to the satisfaction of the self, whose interest was now open to conscious as well as instinctive interpretation.

Apefolk began to eat the flesh of other animals to supplement their usual diet of fruit and nuts, and to raise themselves permanently on two legs the better to carry things and constantly to observe their surroundings on the grassy plains. These are examples of changes in habit which were not attributable to chance but to the intention of will, and of changes of form which are the body's helpful response to such intention. These new patterns of behaviour were not necessarily better in terms of immediate survival, for the apefolk could have remained apes (species of which still continue to be successful), unless these changes were forced on them by increasing competition - perhaps from overcrowding due to constriction of their habitat during an ice-age. But to the apefolk they must have seemed changes for the better

because they answered that newly felt need not only to break new ground but also to take some part in making decisions. Although they were still very much governed by instinct, consciousness gave them a new sense of freedom as they overcame some instinctive inhibitions. And, of course, such progress also appealed to them because it obeys the influence exerted on all life to pursue change to the optimum.

Apefolk must have had a range of inherent instincts similar to those of the dolphins, but were venturing into unknown territory where the struggle for survival was much more intense than in the sea. Now being faced with fierce competition from animals better equipped with the means of attack and defence, yet knowing themselves to be of superior intelligence, they adopted the offensive drives of instinct rather than its passive defences as the chief hallmarks of their character, using that intelligence as their main and very effective weapon. During most of their relatively short history the apefolk came to occupy a unique position amongst Earth's animals, being not the strongest or most fearsome of creatures yet successful competitors, resourceful and adaptable, and representing the penultimate stage in the struggle of blind evolution towards its goal of self-awareness.

It is difficult for us, with our higher level of intelligence, to imagine how the apefolk saw the world from the fastness of consciousness, and how far they managed to progress. They appear to have had no language as we know it, nor capacity for critical self-awareness such as stimulates language - the need to convey to the self and to others meanings different from those which are already instinctively understood. In a vague way they could survey their own instinctive subconsciousness but from the same side of the fence, so to speak, which enabled them to see some better ways of applying the interests of instinct, but not to envisage alternative interests. They had only instinctive morality, yet could impose on instinct new practices which served better than the old. When apefolk became habitually upright, it was not only to observe their surroundings better but also to free their hands and aid co-ordination by bringing their manual activity within range of their level gaze. Their skulls slowly grew in size and changed shape to accommodate the developing brain. My judgement of the apefolk is based on the assumption that they remained locked in consciousness and only recently became extinct; that though descended from them (or from one species of them), we humans are the result of a profound mutation which, whilst leaving us little changed on the outside, made us into another species of altogether different mind.

The apefolk were a developing species, striving to succeed in a highly competitive situation. Of necessity this would mean adopting the mainstays of raw instinctive success, the pecking order and survival of the fittest, as between individuals in a group and between groups. Normally, when animals reach the limit of their

scope they do not settle but keep pressing on aggressively. It is likely that they never learned to limit their killing so as to conserve the food supply, nor to limit their numbers by somehow restricting breeding. This would be because they were unwilling to have their conscious freedom restricted by seemingly unnecessary new inhibitions, and that, in turn, would be because their adaptable versatility enabled them to move on and spread out to pastures new and to thrive on a wide variety of diet.

It is probable that the apefolk learned to use simple weapons like sticks, which they would sharpen, and stones, which they would split to obtain sharp edges, but not to use tools otherwise. They eventually used fire for cooking meat and for comfort and safety at night; also for frightening predators such as lions away from a kill in order to take the meat for themselves. It is likely that they would get this fire from natural sources and keep it burning always, carrying it with them as they moved from place to place, being unable to make it themselves. It is doubtful whether they took to clothing themselves much, or built permanent shelters, but they did live in caves, where available. It is uncertain that they ever took to the water, although recently suggested that they must have done so. They would be able to dig for roots, insects and small animals with sticks, but not to make traps. Although having no language, they must have had a fairly comprehensive range of signs and signals to communicate with each other - facial expressions, hand signals, marks on the ground or on rocks and tree trunks.

By human standards the apefolk made slow and limited progress, yet they advanced much further than any other land animal. As I have said already, consciousness was a forward leap in evolution. Why was it so slow to develop, and why, no matter how large its capacity (e.g. in elephants, whales and dolphins), does it remain limited? I have already hinted at the answer when suggesting that although consciousness leaped forward, instinct was the source of the decision to leap. The conscious faculty is an extension of the preconscious,which is an extension of instinct that, in turn, grew out of life-force. These extensions raised the capacity of intelligence, each advancing to a new frontier, but they all shared the same system of comparative judgement - the same slowly-evolving nerve system in the brain. Thus they were subject to a fixed set of values and concepts, laid down long ago. It was the fundamental instinctive responsibility of intelligence to see that these were never contravened. It is obvious that instinct would take a lot of persuading that a new departure, suggested by the conscious, was an improvement on an old habit and did not contravene basic values and concepts, and this explains the apefolks' slow progress. No decision would have to be made about random mutations, of course, but these were unlikely to occur in a complex and already successful species, and if they did occur they would be adopted or rejected by natural selection. Instinctive caution

prevailed because the conscious faculty failed to overtake instinct, for the reason that it lacked the facilities to conduct independent reasoning and record it in its own memory. This in turn explains why no animal but ourselves is capable of self-reflection, which would be utterly unacceptable to instinct in any case.

As regards their competitive struggle against the rest of nature the apefolk were successful enough. I don't think it was external opposition that initiated their destruction but that they were the cause of their own downfall. Because of their exceptional capabilities they were able to obey instinct by pursuing its drives, but to excess, compensated for by denying, to the same but opposite degree, instinctive inhibitions. This could not be forbidden by instinct because at first it seemed to be successful. But it was out of phase with the balance of nature, contrary to that evolved system which has its own laws, in which every creature normally has its dependent place guaranteed by obedience to its own instinct, and in which change, if it is to be feasible, is usually minor and gradual, or, in the case of dramatic change, is in response to a creature getting out of balance and is immediately beneficial. In the balance of nature every creature achieves optimum tolerance of its circumstances and maximum resistance to dangers. Reckless change may well bring benefits on one side, but leave the creature exposed and vulnerable on the other.

Indiscriminate hunting would not matter whilst there was plenty of free space, but these primitive apefolk could not venture too far north, and eventually there must have been overcrowding. This would mean shortage of food, fighting between groups over kills, for territory and for water, and domination by the fittest. This is not uncommon in nature, but a balance normally obtains whereby conflict has settled down within reasonable limits so that it serves rather than threatens survival. The apefolk, because of their large conscious capacity, would carry their conflicts to damaging extremes and would yet be a long way from finding a tolerable balance.

Another drive, as strong as that of the male to compete for advantage, is the sexual urge. When the living is easy, with no pressure to restrict mating in some way and so keep numbers in check, animals may become promiscuous, particularly in warm climates where there is little seasonal limitation on birth. The current behaviour of baboons in South Africa serves as an example, indicating that the transition from instinct to intellect necessarily proceeds by way of unpleasant behaviour. The state of heightened tension in which the apefolk now lived, due to squabbling and fighting within the group and the threat of attack from outside, might have the same effect. If the females would not or could not submit to them, the males may have resorted to rape, or homosexuality, or the females may have resorted to prostitution in return

for male protection. The result may have been the spread of a terrible disease such as AIDS - a virus normally kept at bay but then moving in to take advantage of an unnatural situation, just as it is amongst humans today.

Whatever may have been the case, I think it likely that the apefolk became neurotic and brutal, fearful and obnoxious to all other animals and candidates for self-destruction. But such behaviour goes against nature, and the consciousness of the apefolk themselves must have cried out for reimposition of the benign and inhibiting instincts which they were ignoring, and for the return of their species to a balanced state. This would be expressed as a strong conscious will for significant change, which eventually could have brought about an extremely dramatic mutation.

The physical evidence implies that, in terms of technology, pre-humans developed hardly at all between the making of the first flint cutting tools and the appearance of the true human species some two or three million years later. There may well have been significant development of a different kind, of which there would be no surviving physical evidence - the slow development of thought. As well as 'doers', the physical/instinctive majority who made the flint spear-heads and were content that the traditional and on the whole successful strategies should not change, there must have been individuals who were vaguely dissatisfied and 'dreamed dreams'. As far as the serious business of survival was concerned, these 'thinkers' would be discounted or regarded as eccentric or mad, just as they are today, but their thoughts, however vague, would have a generally disturbing effect.

It seems likely that one apefolk mother, somewhere in Central Africa between forty and one hundred thousand years ago (estimates vary), could have conceived the genetic pattern for a new extension of the brain. The urge for this mutation must have been gathering strength in pre-human consciousness for some time, and maybe it was another new and unexpected threat of catastrophe that triggered it off, or some challenge connected with the end of the last ice age. Whether or not this was so, the event set the seal on the apefolks' fate and marked the beginning of a new, human species.