Ancient Mind Tricks

Simple thinking techniques from the past

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Preface

Welcome, and thank you very much for downloading this book! My hope is that it will not only stimulate your interest in the most amazing object in the known universe – our brain – but that it will give you a range of tools that are highly useful and practical for getting the most out of your own brain.

This is the ultimate tried-and-tested collection of self-improvement techniques. They've proved themselves over hundreds, and in some cases, thousands of years!

The book is written in such a way that you don't have to read it in order of front to back if you don't wish to. It's pretty easy to just dip in and out as you please. Most people will probably want to skip straight to the sections that are of most interest to them.

There are basically two parts. Firstly, there are the 'tricks' themselves. These are a range of techniques for getting the most out of your mind, developed by ancient peoples. The other part of the book concerns some more theoretical material on the development of the brain and Human culture.

Because I know there are some people who will be purely interested in learning the techniques in the book (and there's nothing wrong with that), I have put this more theoretical section at the end. It's not essential to read and understand this material in order to make the techniques in the book work, but it is presented as an added extra for those curious to know more.

However, if you do have any curiosity about this area then I urge you to read it, because it is very interesting material.

Basically, my theory is that the ancient peoples who developed these arts may not have known as much about the structure and function of the brain as we do (thanks to modern neuroscience), but they knew as much, if not more about how to get the most out of their minds. The self-improvement

techniques they developed work so well – I believe – because they work by using the mind in the way it works best naturally.

Lastly, if you know of any ‘lost arts of the mind’ that are not included in this book, then I’d love to hear from you, perhaps to include them in a later edition of the book. Simply email me at DarrenBridger@gmail.com

Thanks once again, and I sincerely hope that you find this book useful.

Introduction

The lost arts of the mind are mental techniques developed by people in the past that are today only known about by a relatively small number of people.

This ebook will teach you a range of such techniques, where and when they originated (when known) and also look a little bit at the evolution and history of the mind.

The techniques in this book will allow you to:

- Perform lightning fast huge calculations in your head, even if you hated maths at school!

- Remember vast amounts of information at will

- Uncover deep insights into the personality of you, your family and friends

- Spend less time sleeping each night yet still have plenty of energy during the day.

A hundred years ago, hypnosis was a ‘lost art of the mind’.

Up until very recently hypnosis was regarded as a bit of a joke, a stage show diversion at best, a parlour trick at worst.

Yet despite being shunned by the scientific and medical establishments, the art of hypnosis has been known and used for centuries.

What most people don’t realise is that the origins of hypnosis date back to the ancient Chinese and Egyptians, who used it for medicinal and ritual purposes.

Sigmund Freud is the man most often credited with discovering the fact that Humans have a dynamic and powerful subconscious part to their mind. However, what is less well known is that Freud was inspired to form these theories by his teacher, Charcot, a devote of hypnotism.

Hypnosis of Humans dates back to at least the 1700s, but hypnosis of animals was practised even earlier than this. The book 'Hypnosis of Men and Animals' (Ferenc Volgyes, 1966) describes an old African method for placing elephants in a trance by waving a branch of a tree in front of their eyes. In 1636 the mathematician Daniel Schwenter, observed that a hen could be placed in a trance, either by placing a piece of bent wood upon its beak (causing it to stare at it) or by holding it on the ground and drawing a chalk line in front of its beak. A decade later, a German Jesuit Priest called Athanasius Kircher devised another method of placing a hen in a trance: place its head under its wing and gently swing it back and forth through the air. The technique is so reliable that it's still employed by French peasants when buying a live hen at market.

Hypnosis provides us with tantalising prove of the true power of our unconscious minds, but because of the dominance of Freud's pessimistic view of the unconscious – a neurosis filled dark basement that is the source of most of our psychological problems – this power has been largely unrecognised in the modern age.

Another 'lost art of the mind' that has only recently started to gain acceptance and fame is meditation. For many years sceptics looked down on meditation as mumbo-jumbo. But science is increasingly finding evidence of the very real effects of meditation on the brain.

Regular meditation can make you more happy, healthy and resistant to stress!

The latest research is showing that regular meditation can help lower blood pressure, make you more resistant to stress,

Even just the fact that meditation can reduce your overall susceptibility to stress will create a host of positive health and psychological benefits. In fact, it would be difficult to think of any other habit that has so many positive health advantages, whilst being so simple!

Scientific studies have shown that meditation reduces activity in your brain's parietal lobe, the area at the top of your brain that helps orient you in time and space. It's no wonder that meditators often report feeling less 'separate' from their surroundings, and 'at one' with the universe.

Five steps to meditation

When first looking for information on meditation, the shear volume of stuff out there can be overwhelming!

But don't over-complicate things!

Simply following these five basic steps will set you on the path to becoming a practiced meditator.

1. Find somewhere quiet

You need to find somewhere where you can relax and not be disturbed. If you like, turn out the lights and draw the blinds. The fewer distractions you'll have, the easier you'll find it to meditate.

2. Close your eyes

By closing your eyes you shut out a lot of the distractions of the outside world, allowing your brain to relax more as the need to process lots of visual information diminishes.

3. Choose any word

Pick a word or phrase that has some personal meaning to you. Ideally it should have a soothing sound or rhythm.

4. Repeat the word to yourself

Start to breath slowly and rhythmically. On each breath out, say the word or phrase to yourself, silently. The monotony of this will help your brain to focus.

5. Practice!

Try doing this for ten minutes a day for ten days and you will find it easier and easier to enter the meditative state.

The evolution of mental skills

Life in the 21st Century provides us with a seemingly never-ending range of things to stimulate our minds. Never before have we had access to so much information and entertainment. But, more interestingly, never before have we had so many technologies and people to do our thinking for us. Computers, digital storage mediums, mobile phones, the Internet, PDAs and so on all compensate for our own memories. Never before has man had access to so many facts, yet never before has he had to memorise so few of them.

Another common example is the introduction of the affordable pocket electronic calculator in the late 1970s, all but killing off the ability of any person who attended school since then to do mental arithmetic.

It's almost as though we have become mentally deskilled. Our mental abilities have gradually been transferred to our technologies. And despite the ability of new technologies such as the Internet and DVDs to allow us to interact, it can be argued that overall, the new technologies have had the effect of making us

more mentally passive. We forget how dependent people in the past were on their own minds.

A whole genre of popular psychology is based on the idea of ‘use it or loose it’. Usually books of this genre remind the reader that their mental abilities are eminently trainable, in the same way that a person can embark on a program of jogging or aerobic classes in order to improve their physical fitness, proponents of this genre have enthusiastically invited people to commit to a program of mental improvement.

Academics have spent much time and energy devising exercises for this purpose. There is no doubt that benefits can be accrued. Few would doubt the benefits of, for example, reading regularly, particularly for children. Equally, recent research has highlighted the remarkable plasticity of the brain throughout life to grow and learn things. The key phrase here is ‘enriched environment’, the greater the exposure a person has to things that mentally stimulate them the more connections are made in their brains.

However, whilst we now have more solid evidence than ever of the ability of the brain to become stronger with use, the public finds the academic’s brain enhancement exercises less than enticing. Indeed, most of the ‘use it or loose it’ brain self-improvement books now have a somewhat stale air about them.

There are, I believe, a couple of reasons for this.

Firstly, the rewards of such mental training are often quite hard to see and they can be so gradual that the person doesn’t even notice them. Secondly, many of these exercises can be quite boring and abstract, meaning that enthusiasm for them soon wanes. Therefore there is little incentive for a person to persist with such exercises. In the few cases where people do, it is generally because the activity is a game or puzzle that is enjoyed for its own sake, and easy to accommodate regularly into their lives, such as completing a crossword puzzle, reading or playing chess.

It seems clear that the academic-created programmes have made little headway in the real world. What sounds good in an academic paper does not always have practical success in the real world.

What we need are practical mental techniques that are both interesting and fun. But more importantly, we need techniques that have proved themselves in the real world. Furthermore, such techniques should be user-friendly enough for most people to grasp, and powerful enough for the benefits to be clear and quick enough to reward our efforts.

Such techniques are what this book is about.

The techniques presented here are not new. They are old, in some cases very old. They came from ages before the advanced technology of the modern world. But the fact is that we in the modern age are often guilty of dismissing the past too quickly. This is mainly due to the fact that we now have access to much more accurate knowledge about the world, nature and the universe thanks to intensive decades of scientific research. Yet the march of progress, as much as it bestows upon us easier and wealthier lives, often has its cost too. For example, the more successful modern cultures have weakened and overwhelmed many of the world's more traditional cultures. An example of this is that the success of the English language around the world is killing off many other languages. The success of Western popular music overwhelms traditional musical forms.

However, the flip-side to this is that many of us in the modern Western societies have a growing interest in what might be called the wisdom of traditional cultures.

One area this has expressed itself in is folk medicine. In the film 'Medicine Man', the main character played by Sean Connery discovers a cure for cancer in the rainforest. This reflects a belief amongst us that there exist natural cures for most of our ailments, cures that science often perhaps overlooks, especially as much medical research is funded by drug companies who are -

by definition – focused on developing their own drug solutions to people's medical problems.

For the last couple of years I've been on a similar search, not for a cure for cancer, but for ways to strengthen and best use our brains. I've discovered a range of ancient mentals skills in four areas: memory, mental maths, personality insights, and sleeping better.

Vedic Mathematics

The ancient Indian Vedic civilisation devised techniques for doing mathematics in your head that are so simple and powerful that young children can use them to perform huge calculations in seconds.

Memory techniques

The ancient Greeks and Romans developed memory techniques that make use of the way the brain naturally remembers information in order to supercharge their memory abilities.

Personality insight techniques

Three methods of personality measurement with uncertain – but ancient – origins are presented.

Sleeping better

By following the patterns of how our ancient ancestors lived you can cut hours off your sleeping time and still have more energy in the day!

Part Two

In part two, I discuss the evolution of the mind, and how this relates to the lost arts.

Lets begin by looking at how the ancient Greeks and Romans supercharged their memory.

Chapter One

Memory tricks of the ancients

“The main course was just being served in the massive, ancient Greek hall when the expansive ceiling collapsed, crushing every one of the many guests in their seats. Not a single attendee survived, except for the poet Simonides, who had left the room just before the tragedy. In the days that followed, workers who lifted the heavy rubble found that the victims were so horribly disfigured that they were impossible to identify. But Simonides was able to help. By mentally walking alongside the long table, he found he could reconstruct which guest had been sitting in which place. Based on where the bodies lay, he named each one of the deceased.”

Michael Spang, Scientific American Mind, Vol 16(2) 2005.

The grim story above was recounted in a book on learning and memory by the Roman rhetorician Cicero four hundred years later. In Cicero’s day, the lawyer and policiticians of the Roman Empire were able to advance their careers by using such techniques to memorise long, and impressive, speeches.

The ancients respected memory greatly. When you consider how they lacked the memory storage systems that we currently have at our fingertips - computers, large collections of books and publications, the Internet, databases - it is easy to see how important it was to develop the faculty of memory in the past.

Indeed, before the printing press, culture was transmitted by word of mouth. Important knowledge, such as religious books, were routinely memorised whole.

Basically, the memory tricks of the ancients involve harnessing the power of your imagination in order to remember things.

The basic rule here is that in order to remember anything you like, you just use your imagination to link it to some fixed or known structure that you are already familiar with, such as numbers, letters of the alphabet, or the layout of a physical location.

In a sense, this technique is using your whole brain: the structured left side, and the imaginative, novel and spatial right side.

Psychologist now know that facts are more likely to be remembered if they are given meaning. By using your imagination you are giving meaning to the facts your trying to remember.

So, remember that even though I call these techniques “tricks”, don’t let that fool you into thinking that they are somehow simplistic. In fact they are based on a solid understanding of how the Human brain works!

Let’s see what specific tricks the ancients devised based on this idea.

The Greeks

The Greeks worshiped memory. Literally: they named a Goddess after it: Mnemosyne. It’s from this word that we get the word for the Greek’s memory tricks: Mnemonics.

The ancient Greeks regarded Mnemosyne as the mother of the nine muses: the goddesses who inspire love poetry, epic poetry, hymns, dance, comedy, tragedy, music, history and astronomy.

In other words, the Greeks respected memory greatly and saw it as the wellspring of creativity and culture.

The Greek senators would use these techniques in order to learn vast swathes of information that they could reproduce at will in their speeches, rising to positions of power.

The link system

The link system is very simple and is best used to memorise short lists of items, such as a shopping list.

You simply link the items to be remembered into a vivid and dynamic story.

Let's take an example.

Imagine you had to remember the following list of items: A piece of chalk, an umbrella, a pair of scissors and a plastic duck.

What you must do is construct an imaginary story in your mind that links an image of each of these items.

For example: Imagine standing at the top of a **chalk** cliff, you open up an **umbrella** and use it as a parachute to glade down to the beach at the bottom of the cliff. On the beach is a crab who tries to nip at your toes with claws that are actually made of **scissors**. Your attention is only drawn away when you see a giant yellow **plastic duck** floating past on the sea.

A variation on this is to link your list to numbers. First of all you need to make each number into an image. I suggest the following system of images that tend to look like each number, but you can use what works best for you.

0 = A hula hoop
1 = A pen/pencil
2 = A swan
3 = A flying bird (tilt your head to the right!)
4 = A pair of legs with one foot off the ground
5 = A pregnant woman
6 = A monocle
7 = A boomerang
8 = A snowman
9 = A tadpole
10 = A knife and plate

You then use the numbers, in order, as images to connect to your list.

The Romans

The room system

Probably the greatest memory trick devised by the Romans was the Room system. This system is based on the fact that we have a very good memory for the layout of places we are very familiar with. Its based on the way that Simonides, in the story at the beginning of this chapter, was able to remember the guests at the banquet because of their positions around the table.

Choose a place that you can visualise well in your mind and that you are very familiar with its layout. This could be your house, your school, workplace or the local shopping mall.

Alternatively you can imagine a room or place that doesn't exist!

Just make sure that you have the layout of this location very clear in your mind.

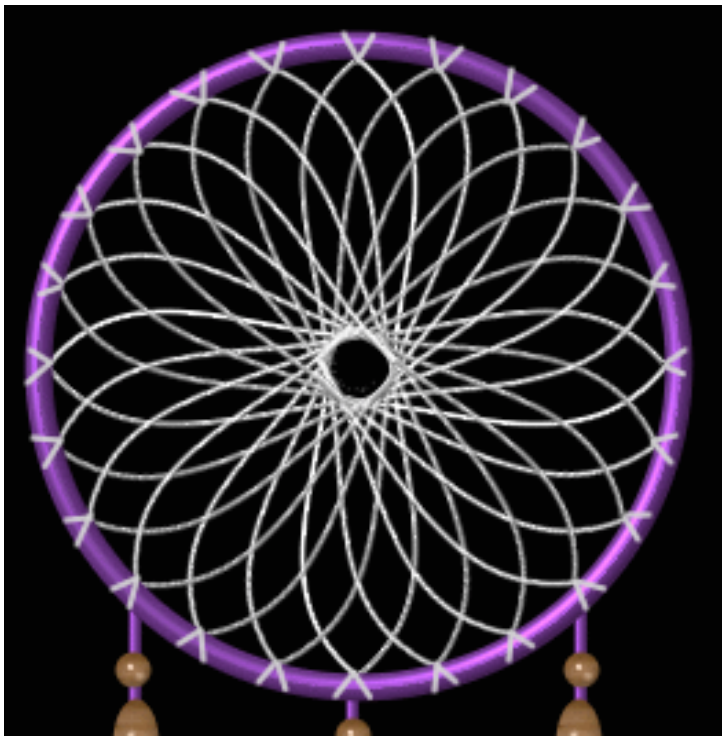
Now, mentally walk through this location and place the items to be remembered at various points. If possible, use your imagination to link them to that position.

Then, in order to strengthen the memory, simply imagine walking around this location as often as you can. The beauty of this technique is that you can do it anywhere.

Next we'll take a look at the lost art of sleep.

Chapter Two

The Lost art of sleep



(Native American ‘Dream-catcher’)

Recently I came across a very interesting piece of technology. One of those ‘must have’ gadgets that occasionally are released. It was a watch that you wear when you go to bed at night and it works out when you have had enough sleep before its alarm goes off to wake you up!

This was unlike anything I’ve seen before and really sparked my curiosity on the subject of sleep. Specifically: why do we feel tired at a particular time at night, why do we wake up in the morning, and how much sleep do we actually need?

The answers to these questions were quite surprising and led to this chapter on ‘the lost arts of sleep’.

This lost art of the mind is a little different from the others.

This one is not a technique that comes from an ancient culture so much as something that can be inferred from our ancient past. You see, the way of life our brains and bodies evolved to suit was very different from the way we currently live. The result is that our sleeping patterns are not optimised.

Many people in the modern world believe that they have to get at least 7 or even 8 or 9 hours sleep per night in order to be fully rested. And even when they do get this much sleep they often wake up feeling drowsy and with low energy, and assume that they probably needed even more sleep!

There are many people who perform perfectly well on 4 to 6 hours of sleep per night, and they are by no means genetics freaks of nature!

A six year study performed at the University of California demonstrated that those who sleep less than 8 hours a night actually lived longer! The study was the largest of its kind ever, looking at 1.1 million people!

Just think, by sleeping an average of 5 hours a night rather than 8, you would have an extra 10,920 hours over the course of the next ten years, *and* you will live longer!

Not a bad reward just for employing a few simple techniques.

At the heart of these techniques is the concept of increasing the 'quality' of your sleep, rather than just increasing the quantity.

Let's start by examining what the average person of today is doing differently from our ancient ancestors.

Firstly, most people today spend a lot of their time (most of their time typically) indoors. During the vast majority of our past, our ancestors would be spending most of their days out in the open, being exposed to a lot of sunlight. And sunlight is far, far brighter than the electric lighting that we are now typically exposed to in its place.

Equally, during the night-time, our ancestors would usually be in pitch darkness. Now there is a lot of light pollution, and even our bedrooms have light seeping into them, and light in the form of clocks and other glowing electrical items. Meaning that we are virtually never exposed to true darkness.

Also, many people's lives today are pretty sedentary. We sit in front of computer screens all day, and then sit down in front of the TV when we get home. In contrast, our ancestors spent most of their day on the move and engaged in physical activity.

All these differences between how we live now and how our bodies evolved to live, effect the healthy, natural operation of our body-clock which drives our sleep system.

The science of sleep

Have you ever wondered how our minds know to sleep at night-time rather than during the day?

The answer is that we all have a body clock which regulates our daily rhythm of sleeping and waking.

Something called ‘the circadian rhythm’ governs the way we feel tired at night and then wake in the morning. It is the system that helps switch sleep on and off. You’ve probably heard of the circadian rhythm, but what most people don’t realise is that it changes our body temperature throughout the day and night. During the course of 24 hours our body temperature rises and falls within a range of 3 degrees Fahrenheit. It’s this rise and fall in temperature that tells us when to feel tired and when to wake up. As our body temperature rises during the day, we feel more awake, while as it drops during the evening we start to feel sleepy. Interestingly, most people experience a temporary drop in body temperature during mid afternoon, and experience a period of tiredness. This is why many cultures have a nap, or siesta, in the afternoon. The body temperature of most people reaches its peak around 6PM to 7PM, and this is therefore when people naturally have the most energy.

What sets this clock?

The primary way that our circadian rhythm is set is by exposure to natural sunlight, and exposure to darkness. The amount of light that our eyes receive controls the production of the sleep hormone *melatonin*.

Melatonin is produced in our retinas and in the pineal gland in the brain. As soon as the levels of light that our eyes receive drops, we start to produce melatonin. When your melatonin levels are high, your body temperature starts to drop you will begin to feel sleepy when they are low your body temperature starts to rise and you feel awake.

As we age, our melatonin levels drop. This is why older people usually only sleep for around 5 or 6 hours a night.

Therefore, this system works best when we get plenty of natural sunlight (which is much brighter than indoor lighting) in the daytime and nice dark sleeping quarters at night.

Our circadian rhythm works best when you get plenty of sunlight, and in particular: plenty of sunlight as soon as possible after you wake in the morning, in order to kick start your body temperature rise that will make you feel wide awake.

As well as plenty of light, getting plenty of exercise will also help bring your temperature up during the day.

The curious consequence of this is that people who sleep a lot – say 9 or 10 hours – may still feel tired during the day because they are getting too much sleep, and not enough light.

Another curious consequence is that the clock operates at the same times every day, no matter what time you go to sleep on any one particular night. This is why it is difficult to suddenly change your routine and wake up earlier than you are used to. Your routine must be changed gradually, and if you do have to get up earlier than usual, getting plenty of sunlight (or high intensity artificial light) as soon as possible – preferably within minutes of waking – will drastically help you to wake up. This is also why some people don't need to use an alarm clock: they just wake up naturally at the same time each day.

One great strategy to combine the effects of light and exercise is to get outside early in the morning and take some form of exercise. It will really help to make you feel wide awake as quickly as possible. Using these methods will help improve the quality of your sleep.

The system is like a see-saw: bringing your body temperature up during the day, and up as quickly as possible, will help it drop, and drop quickly when you go to sleep at night. Increase your activity during the day, and get lots of

light, and you will increase the quality of your sleep and hence need less time in bed! Those who live a sedentary lifestyle, spending most of their time sitting down, typically feel continuously tired.

Now, let us look at what actually happens to your brain while you are asleep, and how it is possible to reduce your sleeping time.

Waves of thought

Your brain works by using a system of electrical rhythms. You don't have to have any deep understanding of how this works in order to benefit from these techniques, simply think of it in the following way. The faster the rhythms are, the more awake and alert you are. Conversely, the slower they are, the less conscious you are, until the very slowest waves dominate in people who are in a coma.

During sleep, your brain goes through various stages of slowing and quickening, slowing and quickening of these waves, like a long scuba dive in which the diver goes very deep, then comes up to slightly shallower waters, then back deeper for a while, then shallow again and so on several times before they resurface (i.e. wake up).

Stage one

This is the stage inbetween sleep and wakefulness. It is the state when you are feeling drowsy, day-dreamy and start to 'zone out' from your immediate environment. As we enter this stage our body starts to relax, our breathing and heart rate drops. This stage typically only lasts a few minutes.

Stage two

During stage two sleep the person drops from the day-dreaminess into actual sleep. Short electrical bursts called K-complexes or Sleep spindles are

observed, and thought to be the brain's way of switching itself from wakefulness into sleep. This stage usually lasts between 5 and 15 minutes.

Stages three and four

These are the stages of deep sleep in which the brain goes into the deepest, slowest frequencies. During these stages, the blood vessels dilate and blood that was stored in the organs during the day flows to our muscles to repair and nourish them. During this period, body and eye movements cease.

These are the most important stages of sleep.

Stage five

During this stage we are most likely to dream. So-called REM – or Rapid Eye Movement – occurs during this stage. The curious fact about this stage is that our brain waves actually become as fast as when we are awake. Yet we remain asleep.

Therefore, in terms of brain waves, coming into REM sleep is like rising back up into the faster frequencies, or, to use the SCUBA diving analogy, its like the diver coming back up into the shallow waters for a while before descending again.

Now, during the course of a typical night's sleep we cycle through this descent and rise about 6 to 7 times, with each cycle lasting between 60 and 100 minutes.

The first descent into the deep sleep of stages 3 and 4 lasts for the longest, with each subsequent descent lasting less time.

Now, here is the key conclusion from all of this:

The vast majority of our essential stage 3 and 4 sleep takes place in the first
4 hours of sleep!

Conversely, most of the last 2 to 5 hours of sleep (depending if you're having 5 to 9 hours of sleep per night) is in stage 5. In other words, the first 4-5 hours of sleep is mainly deep, the second 4 -5 hours is mainly light.

The trick here is to experiment and find the best time to wake up. If you try to wake up earlier but choose a time in which you are in stage 3-4 sleep, you will find it hard to wake up and feel groggy and fatigued when you do – it is like a SCUBA diver trying to surface very quickly from deep water. However, by experimenting you should be able to find the ideal time where you are in one of your last stages of stage 5 sleep – the light, REM dreaming sleep – and find waking up relatively easy.

Actions to take in order to reduce your sleeping time:

Go outside and get as much natural light as possible, particularly just after you've woken up.

If you have to spend most of your day indoors – for example if you work in an office – try and get as much light as you can, for example by sitting next to a window or by spending your breaks outside.

If you really find it impossible to get more natural light then consider buying a high-intensity artificial light such as a lightbox.

Get as much physical exercise as you can during the day (although not for two hours before your bedtime – the exercise will cause an increase in body temperature that will make it harder for you to get to sleep).

Limit your use of sunglasses when outside, particularly during the early morning and evening (UV rays are less strong then), and particularly if you live away from the equator.

Spend as much time as possible out of doors. Open the curtains or blinds as soon as possible after waking up.

If possible have a short (10-45 min, any longer and you will enter deep sleep) nap during your temperature drop in the afternoon.

To increase your chances of falling asleep try exercising about 4 hours before your bedtime, or having a hot bath 60 to 90 minutes before. Both these activities will then cause a subsequent drop in your body temperature, helping you to drop off to sleep with ease.

And remember:

Do NOT just immediately cut your sleep back to 5 hours. Slowly experiment to see how near to 5 hours sleep you can get while remaining alert in the daytime.

Chapter Three:

The ancient art of mental maths Part One

(An Abacus: an ancient device for performing calculations)

“On seeing this kind of work actually being performed by the little children, the doctors, professors and other ‘big guns’ of mathematics are wonderstruck and exclaim: ‘Is this mathematics or magic?’ And we invariably answer and say ‘It is both. It is magic until you understand it, and it is mathematics thereafter…”

- Bharati Krsna Tithaji (1884-1960), re-discoverer of Vedic Mathematics.

As the ancients didn’t have calculators and electronic computers it was essential for them to be able to perform calculations in their head.

The picture at the beginning of this chapter is of an abacus, a well known early form of counting device. However, what most people don’t realise is that the ancients had ‘mental abacuses’ that existed purely in their minds.

For example, the ancient Japanese art of Anzan teaches people how to visualise an abacus to perform fast calculation in their head. The art takes a lot of skill and practice. Visualising the beads of the abacus uses more of the spatial right side of our brain than the left side which is typically used for mental calculations.

In the movie ‘Rainman’, the character played by Dustin Hoffman is able to perform huge, almost instant calculations in his head. Such ‘autistic savants’ exist in real life, hinting that the brain definitely has hidden powers to perform mathematics as complex and fast as a calculator.

Sometimes such people are not very intelligent in other areas, some mathematical savants have even been illiterate. This shows that these skills are not simply the preserve of an overall highly intelligent mind: they are a specific skill that part of the mind is performing, and not due to the brute strength of an overall genius mind applying itself to a calculation.

Indeed, everyone’s brains are constantly performing highly complex mathematical calculations all the time: simply walking, running, swimming or playing sports requires amazingly complex mechanical calculations.

The ancient Indian Vedic culture devised a system for tapping this lost power of the Human brain.

Vedic mathematics is an ancient system of mathematics, lost for centuries and only rediscovered from the Sanskrit texts around the beginning of the 20th Century.

The Vedic system makes doing very complex math calculations in your head so easy that ordinary children can do it. It's claimed that these word formulae are based on the way the brain actually works – which makes it a more natural way to perform maths. The system also is very coherent: it is interconnected, rather than simply being a series of 16 unrelated 'tricks'. It is also a very practical system. It's not a dry, theoretical system that can only be appreciated by professional mathematicians, but a practical system that is best appreciated by using it.

The system is based on sixteen Sutras – or phrases. These are basically word-forumulas for solving different types of problems. When the texts that contained these sutras were first discovered,

There isn't the space in this book to go into depth on all 16 Sutras. So we'll just take a practical look at three of them (one in this chapter, two in the following chapter).

Sonically encoded numbers

The ancient Indians also used songs to memorise long numbers. The scholarly caste – known as the Brahmans – were highly secretive and protective of their knowledge. They encrypted mathematical formulas and historical data in to their devotional praises to Lord Sri Krishna.

The code not only gave Pi to 32 decimal places, but contained within it another code for working out the next 32 digits and so on to infinity.

A great resource, if you wish to delve deeper into Vedic math is www.vedicmaths.org

'By one more than the one before'

The Sutra known as 'by one more than the one before' is used for squaring numbers that end in five.

To take the example of squaring the number 25:

This number, obviously, ends in 5 so is applicable to this case.

The first thing to note is that with any number that ends in '5', when squared, the answer will always end in 25.

We take the sutra 'by one more than the one before', and we look at the number before the 5, in this case "2".

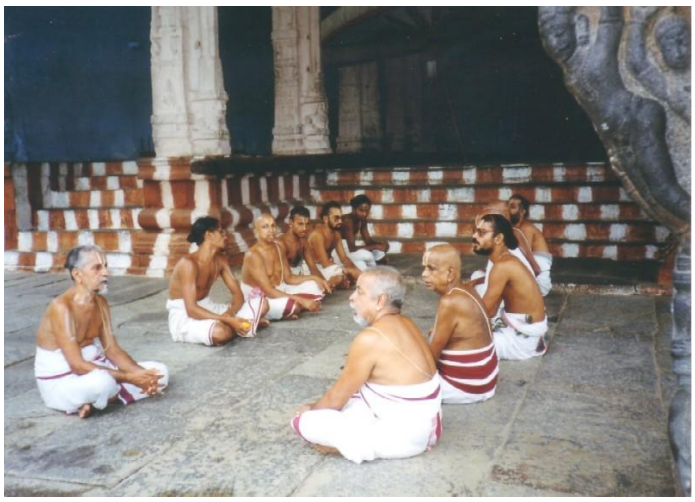
We then add one on to this 'one before': i.e. add one on to 2 = 3.

We then multiply these numbers together: 2 x 3 = 6.

Which gives us the answer: **625.**

Chapter Four

The ancient art of mental maths Part Two



(Indian Brahmins reciting
the Vedas)

In the last chapter I introduced the system called Vedic maths and showed you one of the Sutras – or word formulae.

Now let us take a look at a couple more.

SUTRA: 'By the deficiency'

The sutra called 'by the deficiency' is for squaring numbers that are near a base.

In other words, if you have a number that is just a little bit less than a number like 100, 1000, or 10,000 (the base) that you need to multiply by itself, this is the sutra you use.

Lets use 98 as an example (98 is near the base of 100).

First, you work out the 'deficiency' of this number from the base. So, with the example of 98…

98 is 2 away from 100. So we take 2 away from 98 to give us 96.

Then we square 2, giving us 4.

Our answer = 96/_4 (our base, 100, has 2 zeros, therefore we need two figures here)

Or

9604.

Okay, let's take an even larger number: 991.

991 x 991

991 is near the base of 1000. Specifically, it is 9 away from it.

So the first thing we do is take 9 away from 991 which gives us 982.

Then we square 9, giving us 81.

982/_81

Or

982081.

That took me a matter of seconds to perform in my head, and I'm by no means naturally good at mathematics.

So, don't you think most people would be impressed if you

SUTRA: 'If the Samuccaya is the same, it is zero'

This Sutra is for multiplying numbers by 11.

The process is very simple. All you do is add the two numbers together and place them inbetween the number.

So, for example, if you want to multiply 23 by 11:

2 + 3 = 5
Answer = 2 5 3

If you want to multiply 62 by 11:
6 + 2 = 8
Answer = 682

It becomes slightly more complicated when your two digit number adds up to a two digit number. In that case you then add the first of the digits to the first of the digits of your original numbers.

For example:

93 x 11

Well, 9 + 3 = 12

But the answer is not 9 12 3

Because you have a two figure answer (12), you add the first figure (1) to the first figure from the initial number (9), giving you a combined figure of 10.

The answer is then 1023.

One more example:

58 x 11

5 + 8 = 13

5 13 8

5+1 = 6

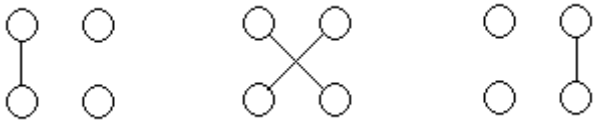
Answer = 638

SUTRA: 'Vertically and Crosswise'

1

This sutra uses a pattern to solve two-digit multiplication. This sutra is not so easy to do in your head, it helps to have some paper to jot it down on.

There are four steps, which can be represented as the following graphic:



Step1 Steps 2 & 3 Step 4

Where each dot represents a digit from the two numbers that you are multiplying, and each line represents multiplying the two numbers it connects.

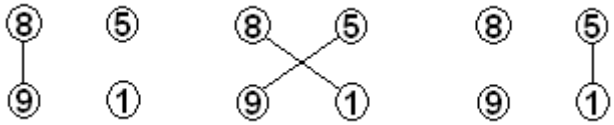
Lets take the example of 85 x 91.

First, imagine the numbers like this:

⑧ ⑤

⑨ ①

Now, go through the above steps with those numbers in place:



8x9 (8x1) + (5x9) 5x1

8 45

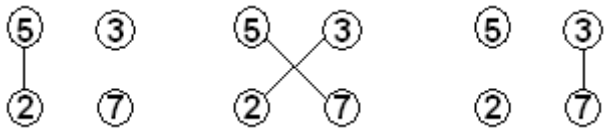
72 =53 5

7 (2+5 =7)

7 7 3 5

Therefore the answer is **7735**

That probably looked more complicated than it was, so lets try another example: 53 x 27



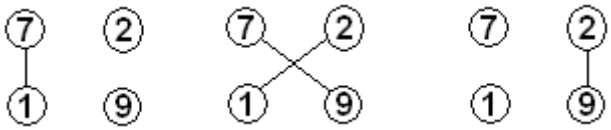
= 5 x 2 (5x7) + (3x2) 3x7

41

10 21

1 4 3 1

Finally, one more example: 72 x 19



= 7x1 (7x9) + (2x1) 2x9

65

7 18

1368

Even though this technique requires some paper to jot down your workings, the special design of the technique does make it easy to remember.

Chapter Five

The Secret Cube Game

All progress, all intelligence, and all evolution is based upon the principle of feedback.

The surest route to success in any sphere of life is to pay close attention to how your thoughts and actions are determining your outcomes. When you don't pay attention to this you can be easily deceived by your own expectation, or by what you 'wish were so'.

Accurate feedback from the results of actions back to the mechanism that controls the actions improves performance. This is how evolution works. This is how brains work. It is also how capitalist economies work (or at least are supposed to, ideally).

In 1536 two separate religious movements were founded which together came to dominate Europe: the Calvinist church in the north, the Jesuit order in the south. Business writer Peter Drucker, while studying the history of this time, discovered what he believes to be the key to their mutual success: the feedback analysis. This is how Drucker describes the feedback analysis:

"Whenever one makes a key decision, and whenever one does a key action, one writes down what one expects will happen. And nine months or twelve months later one then feeds back from results to expectations. I have been doing this for some fifteen to twenty years now. And every time I do it I am surprised. And so is everyone who has ever done this."

Members of the Calvinist church and the Jesuit order both used this technique, and their organisations flourished quickly.

Feedback about one’s personality can be a very useful thing.

In this chapter and the next I will present methods for understanding personality.

First: the **Cube game**.

The cube game is said to have originated with the ancient desert Sufis. Although no-one can prove this. In the book 'Cube: Keep the secret', Annie Gottlieb and Slobodan D. Pesic write: "The Cube is an imagination game - and more. Last seen making the rounds in the coffeehouses of Eastern Europe, the Cube is rumored to be of ancient Sufi origin, but no one really knows for certain."

The game is essentially an imagination exercise.

There are no right or wrong answers, simply answer with whatever comes to mind. Try and be as specific as you can, give your answers as much detail.

Here we go...

Imagine you are in a desert. In every direction there is sand. All the way to the horizon. In the desert there is a cube.

Describe what the cube looks like.

How big is it?

Where is it located?

What is it made from?

What colour is it?

What texture does it have?

What is its temperature?

Where did it come from?

Become very clear in your own mind of the answers to these questions. The more detail you can provide now, the more interesting it will be for you later.

Also in the desert there is a horse.

What does the horse look like?

What colour is it?

What is it doing?

Where is it in relation to the cube?

Is it interacting with the cube?

Again, provide as much detail as possible.

In the desert there is also a ladder.

Again, describe the ladder, its size, appearance, color, material composition etc.

Also, describe where the ladder is in relation to the cube and the horse.

There are flowers in the desert.

Where are they? What do they look like?

Finally, there is a storm. Where is it? Does it affect the cube, horse, ladder and flowers? If so, how so?

Do you have all the details of this picture clear in your mind's eye?

Okay, make sure you do the exercise and clearly have the details in your mind before you read on. In a minute I'll tell you what its supposed to mean.

Self Knowledge

The Cube game is all about self-knowledge.

Today, in our technological, scientific age, we think of knowledge in terms of information that is applied to the world, to *things*.

In other words, we see knowledge as productive and utilitarian.

However, this is a fairly recent way of looking at it. It was only from the 18th Century onwards that this way of thinking about knowledge took off. Up until that time, knowledge about 'how to do things' was transmitted from a master to an apprentice. It wasn't something that was open for anyone to discover, in a book or course. In fact, these bodies of knowledge, which we would now think of as 'crafts', were in the times prior to the 18th Century commonly referred to as 'mysteries'. These bodies of knowledge, essential for the survival of the craftsman, were jealously guarded and learned from living experience, and not abstracted words in books.

As the inventor of 'virtual reality', Jaron Lanier, remarks: "Information is alienated experience."

Previously, knowledge was considered to be of one of two forms.

The one form, advocated by Socrates in the West and the Zen monks and Taoists of the East, was *self*-knowledge.

The other form, advocated by Protagoras in the West and Confucius in the East, and was more concerned with how to speak and act in order to progress oneself in the world.

The truth is that, today, any person needs a fundamental mastery in all three areas of knowledge: knowledge about how to do things, how to say things, and about how YOU see things, and how YOU best do and say things.

Anyway,,, back to the cube.

The cube game claims that your answers about each of the elements in your imaginary picture of the desert are indicative of how you see different things in your life.

Specifically:

The cube is supposed to represent YOU. Your inner self, personality, soul, call it what you will.

The horse represents your romantic partner.

The ladder represents your friends.

The flowers represent your children (or whatever you symbolically think of as your 'offspring', which may be ‘offspring’ of your mind).

The storm represents how you view 'trouble'.

Now, it is easy to dismiss this as a mere child's game, just an idle diversion. But what piqued my interest in it were two interesting things:

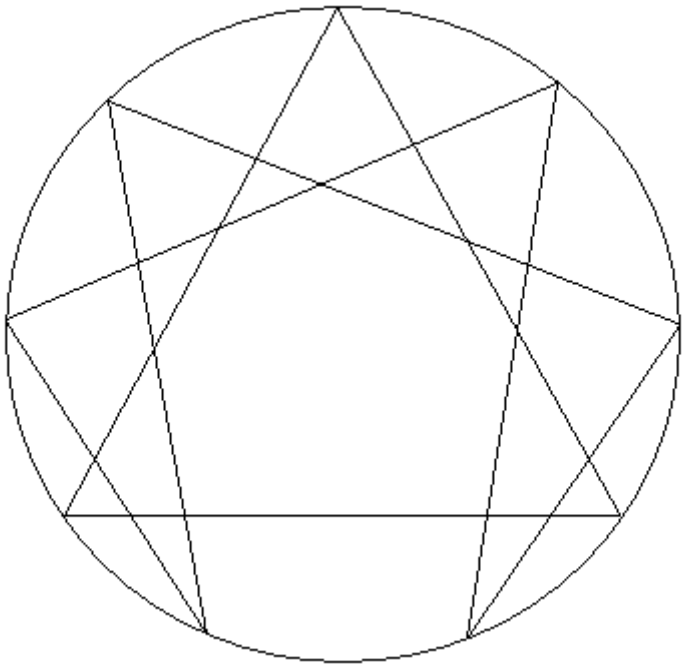
1. When I first played the game the images popped into my mind straight away, particularly the cube. I didn't feel like I was consciously constructing them.

2. Everyone I've tried this with has very distinctive answers. Therefore it seems to me that the construction of these images is more down to the individual personality than to cultural norms.

Please try this game for yourselves and on your friends and see what you think.

Chapter Six

The Enneagram



We do not know the exact origins of the Enneagram. Some scholars believe it to be extremely ancient, perhaps as old as 10,000 years. Given that it would almost certainly have begun as an oral tradition, the lack of documents would make its origin impossible to pin-down. What is certain, however, is the fact that the nine personality types of the Enneagram crop up again and again in many civilizations. This attests to either the antiquity of the technique, or the depth of its truth.

Although we are unable to locate the origin of this technique, we can trace some of its history.

Kaballah

The Jewish mystical tradition of the Kaballah (recently made famous by Madonna) incorporated insights from the Enneagram. The Kaballah tradition began roughly two thousand years ago and reached its zenith in northern Spain and Provence in the 12th and 13th Centuries. A key concept of the Kaballah are the Sephiroth, or the forms of intelligence that flow from God. From the Sephiroth come the nine Human virtues: intellect, wisdom, love, Justice, beauty, firmness, splendour, foundation, and kingdom. These nine virtues correspond to the nine personality types of the enneagram.

Ancient Greece and Egypt

In ancient Greek mythology, the nine daughters of Zeus and Mnemosyne comprised an ‘ennead’ called the Muses. The nine Gods of ancient Egypt were referred to as the *great ennead*.

The Islamic and Christian connections

Both Islam and Christian traditions have links with the Enneagram. There are links between the Enneagram and the 1400 year old teachings of the Sufi Muslims. The 13th Century Christian theologian, Thomas Aquinas, believed there were nine orders of angels that corresponded to the nine distinct personalities of the Enneagram.

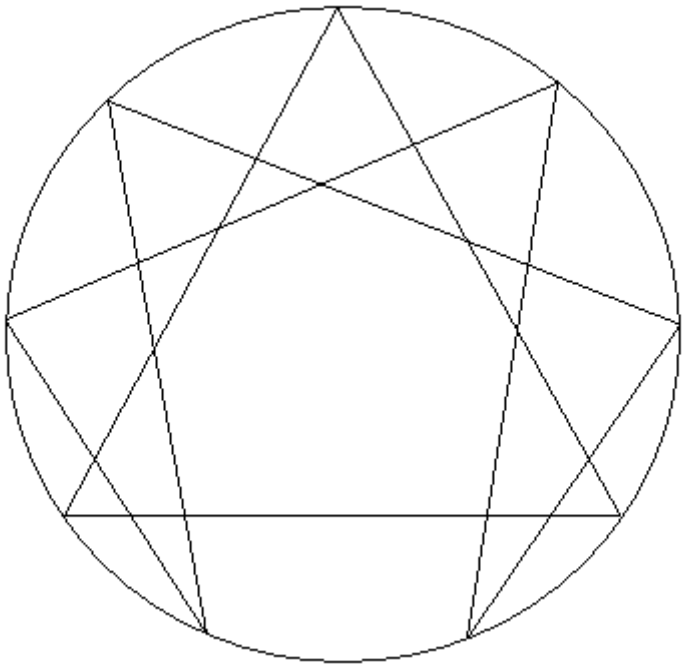
The Enneagram Rediscovered

In modern times, the Enneagram was re-discovered at the end of the 19th Century by the mystic Georgei Ivanovitch Gurdjieff. Gurdjieff spent time traveling through India, Tibet and Arabia, searching for ancient knowledge.

A Jesuit seminarian called Don Richard Riso encountered the Enneagram in 1973, and developed it into a questionnaire similar to a 20th Century personality test.

What is the Enneagram?

Enneagram literally means a drawing of nine (the Greek word for 'nine' is “ennea” and 'gram' means a figure or drawing). The Enneagram is usually depicted as a nine-pointed star with an open base. Like this:



These types are created because each of us has a dominant inner motivation that we tend to use and which eventually comes to define us. This is not an entirely alien concept to modern Neuroscience, which posits that much of the work of the brain is not just 'pure' perception of the world through our senses, but

The Enneagram describes 9 different personality types:

1. The perfectionist

Highly critical, the perfectionist holds both themselves and others to a high standard. Ones often have a lot of suppressed anger which can manifest/become rationalized as resentment. In infancy, type ones are made aware of some imperfection or do not receive the attention they feel they deserve.

2. The giver

This type tends to constantly cater to the needs of others. They are generous with their time, energy and possessions. When they were young, Givers came to believe that in order to be loved they must first meet others needs. However, this tendency to get what they want through helping others can sometimes be manipulative.

3. The performer

Performers are competitive workaholics. During childhood they came to believe that only successful people are loved. Often Performers are pressurized by their families to do well at school etc. This type then comes to associate being loved with achieving goals. Equally, many Performers simply felt unloved and their striving for success came from a desire to escape from their family background.

They have plenty of energy and use it in a constant striving for success and prestige. Performers can become out of touch with their feelings, as they set these aside so they can't interfere with their striving for success.

4. The romantic

The romantic is idealistic, passionate and artistic. They feel that in order to be complete they must find the perfect partner. However, there is a paradox in how they view people that tends to work against them finding such an ideal

partner: the more distant someone is to them the more perfect they seem, the closer the person is, the more flawed they seem, and less desirable. The phrase ‘absence makes the heart grow fonder’ could have been written with the Romantic in mind! This leaves the romantic with a strong emotional need for a relationship, yet with a push-pull attitude which makes it almost impossible for them to fulfil that need.

In childhood, romantics came to feel that they were separated or abandoned by their source of unconditional love, and therefore they feel unworthy. In order to cure this, they feel driven to be ‘special’, and to seek out their perfect unconditional love in a romantic partner.

5. The observer

The Observer watches life from a distance and tends to avoid directly engaging it. They are private (although not necessarily shy) and require plenty of time alone. This type tends to compartmentalise their life, and needs to feel in control over any environment they enter.

During childhood, Observers learned that in order to feel less threatened in an intrusive and often dangerous world they could retreat into their own minds and their own imaginations. As such they have a love of the life of the mind, and find security in collecting vast amounts of knowledge and facts.

6. The questioner

Questioners are fearful and constantly expect the worst. As a child, Questioners came to believe that the world was threatening or potentially even damaging. This caused them to become hypersensitive to scanning for potential threats in their environment.

Questioners can come across as perpetually doubting other people’s motives, and they can also be great procrastinators.

However, once Questioners do trust you, they are very loyal and committed.

7. The epicure

Epicures are the Peter Pan's of the Ennegram, being optimistic, energetic and charming, if a little mysterious and elusive. In the same way that observers like to escape into their minds, Episure's like to escape into their fantasies. This type hates to feel trapped or pressurized, and likes to always keep their options open.

During childhood, Epicures learned to emotionally distance themselves from painful situations by disappearing into their imagination, where they would create pleasant fantasies, or pay only selective attention to reality, and glamorize their personal situation.

8. The protector

This type is sometimes known as 'the boss'. They can be assertive, or even aggressive. They are the all-or-nothing, work hard – play hard type.

At an early age Protectors came to believe that in order to survive in a threatening world they would need to become strong. They believe keenly in the idea that the strong survive while the weak perish. But, ironically, protectors often end up becoming what they feared in others: dominating, insensitive and unjust.

9. The mediator

These are the peace-makers or diplomats of the Enneagram. However, their love of harmony can make them too keen to go along with other people's plans and not assert their own. As a child, this type felt separated and overlooked by their family and the world. They then compensated for this by forgetting themselves and trying to connect to others by understanding and meeting their needs.

Ultimately there is no proof that the Enneagram works. But the length of time its lasted certainly makes it worth looking at.

Part Two:

Your brain: Half a billion years in the making!

Recorded history is only the tip of the iceberg of the history of the Human mind.

Our brains are based on incredibly ancient ‘designs’. For example, half a billion years ago there were fish-like creatures called Placoderms and Ostroderms that possessed brains with the same divisions as ours.

The Human brain is like an old house that during its lifetime has had two new sections added. At the base we find the oldest part of the brain (which, as just mentioned, is more than half a billion years old): the reptilian brain. This, in Humans, is essentially responsible for regulating the unconscious, repetitive functions of heartbeat and breathing (as well as controlling levels of alertness). Surrounding our reptilian brain is the limbic system - the first extension to our house - this is the early mammalian brain and is responsible, amongst other things, for generating emotion. The newest part of our brain - the second extension - sits on top of the limbic system: the neo-cortex is where our consciousness and self-awareness appear to reside. This is the only part of our brain that knows true rationality. Our three brains work together in concert.

Even though modern Humans, anatomically identical to ourselves, can ‘only’ be traced back to around 100,000 years ago (with the first appearance of the species that we belong to: Homo Sapiens Sapiens in Africa and the near East), intelligent Humanoid creatures (our evolutionary ancestors) have been around for at least 2.5 million years (dated by the first appearance of stone tools). Our closest living relative is the chimpanzee, but even this species is separated from us by a common ancestor 6 million years ago (the famous ‘missing link’). So, for at least a couple of million years we have been evolving into the unique creatures that we are today.

Between 1.5 and 2 million years ago there was a major increase in brain size of our Humanoid ancestors that scientists have linked to the development of toolmaking. Then between 30 and 60 thousand years ago our direct ancestors first developed art, technology and religion – the basis of true culture. Finally, around 10,000 years ago, began as our ancestors began to plant crops and domesticate animals in earnest.

Given that modern Humans, with brain just as large as ours, had been around for almost a quarter of a million years, why should it not be until 30-60 thousand years ago that they developed the modern mental abilities? And why is it only in the last 10,000 years that we have begun to develop 'civilisation'?

Well, partially this could be due to the fact that prior to this time, our ancestors lived a totally nomadic, hunter-gatherer lifestyle. This left little time for experimentation or innovation. In each generation the son always had to follow the same role as the father, the daughter the same as the mother. There was no room for specialisation. With the development of farming, a very important milestone was reached as it stabilised the food supply and left more scope for specialisation and innovation.

Equally, during most of ancient pre-history, there were comparatively few of us around, meaning that complex societies and specialisation of labour couldn't really exist. Consequently there was less chance for complex innovations to occur. The resources, energy and manpower required to create many inventions are so considerable that without them, even if the idea for the invention occurs to an ancient genius, he is unlikely to realise the invention. This was the case with Leonardo Da Vinci, who never built most of his inventions, only sketched them.

The current theory is that the mind is made up of specialised modules.

Our modular minds

The Human mind is not a completely general purpose intelligence; rather our intelligence developed in such a way that is gave advantage to our ancestors in very specific ways.

The brain, like other organs of our bodies, was shaped under the survival pressures of the environment that that the early Humans evolved in – referred to by scientists as the 'ancestral environment'. The survival pressures of the ancestral environment meant that specialised skills in key areas of survival – mainly relating to hunting and defence from predators – were highly valuable. Far more so than a brain adapted simply for 'general intelligence'.

The brain takes up a lot of energy. As it developed it had to 'pay its keep' and confer very specific, practical benefits.

The appearance that we operate entirely by general intelligence comes from the way that our modules of specialised intelligence have so seamlessly integrated together. However, it is still possible to notice the seams if one knows where to look. For example, the Human tendency to anthropomorphise animals – treat them as though they had Human feelings, thoughts and intentions – comes from the inappropriate mixing of our social and natural history intelligences. Equally, some things present problems for our brains to understand because in the ancestral environment we had no need to. An example of this is imagining very large quantities like a million.

For example, before the mental revolution of 30-60 thousand years ago its believed that we had developed skills like social intelligence, language, technical intelligence, and a natural history intelligence (knowledge about plants and animals), but that it took time for these different intelligences to interact and meld together. As cognitive archaeologist Steven Mithen writes: "In both development and evolution the Human mind undergoes (or has undergone) a transformation from being constituted by a series of relatively

independent cognitive domains to one in which ideas, ways of thinking, and knowledge flow freely between such domains."

In other words, the brain evolves a specific skill but then, over time, Humans find other ways to use the intelligence that drives that skill.

The brain became more than the sum of its parts.

An example of this is the appearance of art. Some striking examples from this period have been found. A statuette of a man with a lion's head carved from the tusk of a mammoth was discovered in Hohlenstein-Stadel in Southern Germany and dated to between 30-33,000 years old.

Also, many ancient paintings have been found in caves around the world. When such prehistoric cave paintings were first discovered at Magdalenian in Spain 150 years ago they were regarded by academics as hoaxes. Subsequent studies have shown that they are indeed genuine. However, their ages are often a point of debate, as dating techniques, such as radiocarbon dating, can easily be invalidated by contamination from older or newer debris. One theory of cave paintings is that they were made by the shamen of the time. The Shamen would isolate themselves in the dark depths of the caves, enter a trance and paint their 'visions'.

What is apparent is the quality of these paintings. They have an appearance of elegance and skill. They are not child-like. How can this be?

The creation of symbolic art requires several different mental abilities to come together at once: the ability to plan and craft an object/painting from an idea, the ability to endow an image or shape with a symbolic, non-literal meaning and the intention to communicate that idea to others.

Firstly, making marks on bones – as a natural by-product of cutting – may have been the origin of beginning to craft an object or make intentional markings. Our Humanoid ancestors were probably capable of this, and even

chimps have produced paintings in the laboratory. Also, the skills needed to craft an ivory figurine are simply an elaboration of the skills needed to craft a tool (indeed, many early tools were crafted with designs and images on them – perhaps to embody information. The very first form of 'information technology'!).

Secondly, intentional communication was almost certainly present in our Humanoid ancestors – probably mainly in the form of grunts, and other vocalisations and gestures. Then eventually in Homo Sapiens Sapiens: language.

Lastly, the ability to see symbolic meaning in a shape can be viewed as an elaboration of the hunter's skill of reading animal footprints.

It is only when all three of these abilities come together that we get art. Once again, the whole is greater than the sum of its parts.

This is probably why the earliest art is of such high quality: the skills behind it were already fully formed. If the earliest artists were learning their skill with a 'general intelligence' one would expect more of a gradual build-up of skill.

The idea that our brains work, fundamentally, by these modules that evolved for specific tasks is entirely compatible with the way that the lost arts of the mind work. For example, most people find it very difficult to memorise long lists of words, and this is not surprising as we would have had little use for doing this throughout our evolutionary history. However, the ability to remember locations, and visualise them in our minds was extremely useful in hunting, food gathering, and many other ways. Thus, by tapping into this 'module' we are able to increase naturally our power to memorise a list. Its also possible that the other techniques in this book work by tapping into these ancient brain modules.

Conclusion: Our mysterious minds

The Human brain is the most complex object ever discovered. Even today, with all our science and technology, we are still struggling to understand this 100,000 year old model based on ‘designs’ that stretch back a billion years or more. In fact, as John Horgan points out in his book ‘The Undiscovered Mind’, modern neuroscience is facing the ‘Humpty Dumpty’ problem: it is able to take the brain apart and understand how the parts work, but it is unable to put it all back together again and understand how the brain works as a whole.

Horgan also points out that psychotherapy, Prozac and other treatments for mental disorders primarily work due to creating a sense of belief in them: the so-called Placebo effect. Things work better when you believe in them.

In this book I’ve tried to show that a useful approach to understanding our minds, and how to best use them, is to study mental techniques from the past. It makes a lot of sense to consider that as our brains are the same as those that were around 100,000 years ago, our ancestors might have learned a thing or two in that time about how they best operate.

Our brains are profoundly mysterious objects in a mysterious universe. We manage to create a sense of normality and uniformity through our environments that we live in, yet we forget some basic facts, such as:

The visible range of light that we can see is just a tiny part of the electromagnetic spectrum.

Even time, according to physicists, is an illusion created by the way our brains perceive the world.

Most of what we see isn't direct perception, but a reconstruction by our brain based on incoming signals from our eyes. The blind spot in the eye covers an area equivalent to 50 full moons, yet we are not aware of this gap in our vision due to the constant movements of the eyes, and our brain's ability to fill in the gap.

Winston Churchill is quoted as saying "The farther backwards you can look, the farther forward you are likely to see.", a statement that reminds us that knowledge of the past holds the key to our future. In geological terms, our Human species is still young, a mere 2000 or so generations. That is quite a startling thought: trace your family tree back 2000 steps, and what you will find is no longer quite Human.

Yet, our minds, which evolved in the past, are products of a radically different world. Unless we understand that world, and how it shaped our thinking and our potential, we will fail to understand ourselves.

Our own world is growing ever more complex, not only in terms of technology but socially. Population size has been growing exponentially. For the majority of the history of our species there were relatively few of us on the planet, now there are billions, and the global population is still growing. As Robert Ornstein writes, in his book 'The Evolution of Consciousness':

"Producing the first billion humans required about a million years; producing the most recent billion, fourteen years."

Whilst there was change in our past, that change usually occurred at a slow enough rate for Humans to adapt over generations. Now the pace of change has accelerated to the point where one generation can expect to live a very different lifestyle from the next.

The amazing adaptability of the human mind will probably mean we will cope with the challenges of the future, but it would be wise to go into the future with

a full knowledge of the past, and the wonderful mind-tools that our ancestors developed.

In this book I've shown, hopefully, that the past has much to teach us about the potential of our minds.

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Appendix

Our sophisticated ancestors: Unexplained Artefacts

Here are some strange ancient artefacts that hint at inventions that we usually assume to be modern could have been invented before in the distant past.

These mysteries are a reminder that our ancient ancestors were, in theory, just as intelligent as us: their brains were the same as ours.

1. The Antikythera 'computer'

In 1990, the partial remains of a curious mechanical device were recovered from a shipwreck off the coast of Crete. The device was a series of gears housed in a wooden casing which fell appart when it was brought to the surface.

The device was dated to 80BC.

X-ray analysis revealed that the device had a complex internal structure which actually formed a machine that could 'compute' the movements of the moon and planets, and calculate their positions on any given date!

Even given the fact that the ancient Greeks were well versed in astronomy, the existance of such a basic but elegant 2000 year old computer is pretty astonishing. It is not known exactly who built it.

2. The Baghdad Battery?

Was Alessandro Volta the first person to invent the electric battery in 1800, or did someone else get there first?

In 1938, the German archaelogist Wilhelm Konig discovered, just outside Baghdad, a 13cm tall earthenware jar that contained a iron rod inside a copper cylinder with an asphalt stopper on the top. The device showed signs

of acid corrosion, and Konig claimed that he had found the world's oldest battery. It was dated as being around 2000 years old!

Subsequently, replicas of the device have been made and have suceeded in producing a 2 volt charge. Suggestions for its ancient uses have included medical procedures, gilding and religious trickery!

3. Ancient chinese Aluminium

Aluminium is a metal which only naturally occurs in compound form. It was beleived to have been first isolated in the 19th Century via a smelting procedure that required electricity.

However, in 1956 archaelogists uncovered the grave of Chinese general Chou Chou who had died around 300AD. They found a girdle fastener in the grave, and spectroscopic analysis surprisingly showed that it was composed of 85% aluminium.

It is not known how the Chinese were refining aluminium 1700 years ago.

4. The London Hammer

This artefact is extremely weird.

In 1936, hikers in London, Texas discovered an iron and wood hammer encased in rock. The rock was 400-500 million years old.

The iron was found to be much purer than modern iron.

The owners of this artefact are creationists, and are reluctant to release it for further scientific testing. Therefore this instrument's origins remain ambiguous and mysterious.

5. The Piri Re'is map

This map of the coasts of Africa, America and Antarctica was discovered in 1929 and dates back to the Turkish mariner, Piri Re'is, who created it in 1513, based on an earlier map.

What is strange is that Antarctica wasn't discovered until 1818.

What is even stranger is that the map depicts what Antarctica looks like under the ice cap. The last time the continent was free of ice was at least 6,000 years ago.

6. The Walls of Sacsayhuaman

The walls around the fortress of Sacsayhuaman in Cusco, Peru, are nine metres high and stretch for 360 metres. They were constructed in the 16th Century from huge limestone boulders weighing up to 300 tonnes each. Even without mortar, the bricks fit together so perfectly and tightly that not even a knifeblade can be inserted between them. How such precisely engineered brickwork was achieved with 16th Century tools is a mystery.

7. Ancient Egyptian Aeroplane design?

In 1898 a small wooden model resembling a bird was discovered in a tomb at Saqqara, Egypt.

The artefact was not considered significant and was stored away in the Cairo museum.

In 1972 the object was re-examined by the archaeologist Dr Kalil Messiha who found that its design was remarkably aerosynamic, particularly the wings, which curved in the same manner as concorde, and would provide enormous lift.

Dr Messiha claims that it is a model for an aircraft that the ancient Egyptians planned to build.

8. The Ancient City of Nan Madol

The incredible city of Nan Madol was built from a quarter of a billion tonnes of massive bassalt blocks on top of a coral reef in Micronesia. Incredibly, carbon dating suggests that the city began construction in 200 BC and took 1000 years.

The city is composed of 100 mini-islands linked by cannals, and spans 18 square kilometres.

Who built it, and how they transported the bassalt without modern machinery is a mystery.