The

TEN TYPES *of* HUMAN

A New Understanding of Who We Are
and Who We Can Be

DEXTER DIAS

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About the Book

WE WANT TO BELIEVE THERE ARE SOME THINGS WE WOULD NEVER DO.

We want to believe that there are others we always would. But how can we be sure? What are our limits? Do we have limits?

The answer lies with the Ten Types of Human: the people we become when we are faced with life's most difficult decisions. But who or what are these Types? Where do they come from? How did they get into our head?

The Ten Types of Human is a pioneering examination of human nature. It looks at the best and worst that human beings are capable of, and asks why. It explores the frontiers of the human experience, excavating the forces that shape our thoughts and actions in extreme situations. It begins in a courtroom and journeys across four continents and through the lives of some exceptional people in search of answers.

Mixing cutting-edge neuroscience, social psychology and human rights research, *The Ten Types of Human* is at once a provocation and a map of our hidden selves. It provides a new understanding of who we are – and who we can be.

About the Author

Dexter Dias QC is a barrister who as Queen's Counsel has been instructed in some of the biggest cases of recent years involving human rights, murder, terrorism, crimes against humanity and genocide. He has been instrumental in changing the law to better protect young women and girls at risk of FGM and works pro bono internationally with survivors of modern-day slavery, human trafficking and violence against women and girls.

He is also a prize-winning scholar of Cambridge University, having been elected to a Foundation Scholarship at Jesus College and winning the Lopez-Rey Prize for the highest Distinction in his research degree at the Faculty of Law's Institute of Criminology, where he critically analysed the use of state coercive force on vulnerable young people in custody. He has researched and given lectures at Cambridge and held a visiting research residency at Harvard. He has addressed major international conferences and spoken on many national platforms around human rights and social justice issues and violence against women and girls. He chaired and co-wrote the influential Bar Human Rights Committee Report to the Parliamentary Inquiry into FGM and significantly contributed to changing the law to strengthen the national protective mechanism. His research was cited in Parliament and paid tribute to for its critical analysis of the defects in the UK's rights protections. He has written reports to the United Nations, briefed the UN's Special Rapporteur on Violence

Against Women and Girls and advised parliamentarians in both the Commons and Lords.

He acts as governor, ambassador and advisor in respect of several human rights NGOs, sits as a part-time judge in the Crown Court (including at the Old Bailey), and is authorised to try Serious Sexual Offence cases. He was finalist in Liberty and JUSTICE's prestigious Human Rights Lawyer of the Year Award and won the TMG Award for Outstanding Contribution to Advocacy and Justice.

 @DexterDiasQC

THE TEN TYPES OF HUMAN

A New Understanding of Who We Are
and Who We Can Be

Dexter Dias

WILLIAM HEINEMANN: LONDON

For Katie, Fabi and Hermione

How does one fashion a book of resistance, a book of truth in an empire of falsehood? Is it possible for freedom and independence to arise in new ways under new conditions?

Philip K. Dick

FROM THE AUTHOR

THE BOOK YOU are about to read is part of a project to forge a new understanding of who we are and who we can be. It is based on research that began ten years ago and that has been conducted on four continents. It is also grounded in my work as a human rights lawyer. But the project would not have been possible without the participation, collaboration and generous contribution of a great number of people, many of who appear in the course of the text. Later in the book I pay proper tribute to them and explain the distinctive nature of their indispensable contribution. There I also acknowledge my deep gratitude to the friends and colleagues who have been instrumental in facilitating this endeavour. However, at the outset I must acknowledge the advice and support of close colleagues at the University of Cambridge, especially Professor Loraine Gelsthorpe, Director of Research at the Centre for Community, Gender and Social Justice, which I am proud to be affiliated to, my academic collaborator Dr Caroline Lanskey at the Institute of Criminology, and Dr Nicola Padfield at the Faculty of Law. Equally, at Harvard I am particularly indebted to Professor James Sidanius, the William James Professor of Psychology and Director of the Intergroup Relations Lab, who offered me a residency as Visiting Researcher, Dr Mariska Kappmeier (my next door neighbour on the 14th floor), and Professor Joshua Greene, who kindly invited me to present elements of my research at his groundbreaking Moral Cognition Lab. I am also indebted to numerous colleagues in sub-Saharan Africa, Haiti and Central

Asia, in London and New York, at UNICEF (especially the astounding Judith Léveillée and Sabrina Avakian) and at the Bar Human Rights Committee (particularly its Chair, Kirsty Brimelow QC, and my colleague on fighting FGM Zimran Samuel). However, it would be a serious omission not to point out that of the numerous people I've interviewed, followed, consulted, contested, travelled with and tormented, during the research for this book, only a small proportion actually appear in the text. Nevertheless my other correspondents, confrères, intellectual comrades and combatants have informed my thinking and approach and thus are present as well. A comprehensive list of those I can name appears at the end of the book. However, given the particular nature of this research inquiry, and while many people appear bearing their real names, others have necessarily had their names altered. In respect of several, identifying characteristics and certain circumstances have had to be changed. The reason has been to protect the participants – both in terms of protecting their privacy and in certain instances their personal security, or that of people closely connected to them. Some have been or remain at considerable risk. Others have had their lives threatened. Several have been hurt or injured. A few have taken great risks in telling what they have. They have done so in the hope that it will help others, an aspiration I share and one of the chief animating ideas of the book. Some are embarking on perilous ventures – among the great secret journeys of our age – across treacherous terrain frequented by treacherous people. Others are returning to dangerous countries or regions acknowledged by international agencies to be hazardous and unsafe. Therefore I make it plain that where necessary, as in the unforgettable *Love's Executioner* by

Irvin Yalom, I have endeavoured to create an impenetrable 'disguise' (to use Yalom's apt phrase). In some cases, as in his book, the best course to safeguard the identity of the participant has been to make what Yalom calls 'symbolic substitutions' or to 'graft', as he puts it, one person's background or identity onto another's, an approach also used by Barack Obama in respect of certain characters in *Dreams from My Father*. In making such elisions, I have sought to preserve what the great Oliver Sacks in *The Man Who Mistook His Wife for a Hat* calls ' the essential "feeling" of their lives'. Where this has been done it is because it has been the only way to ensure that their privacy and personal safety are maximally protected. Thus this book contains the full spectrum of material, from accounts that appear with names and essential details listed as they occurred, to those where there has had to be some or a substantial degree of disguise, to those where accounts have been blended or collaged. In the latter case, my solution has been to create connecting material and endeavour to develop a different kind of writing, melding fictive with non-fiction elements. Throughout, dialogue has had to be redacted for reasons of confidentiality or sensitivity; some dialogue has been modified, reconstructed from memory, condensed or paraphrased for length, or deduced for continuity or coherence from accounts of events provided. I have tried to convey the sense of accents and modes of speech and where – as frequently occurred – discussion took place in more than one language, I have usually (but not always) simplified it into one. Where participants have communicated dialogue or scenes with third parties, I have endeavoured to reconstruct them as authentically as possible and in the spirit of the

overall narrative. Where there are gaps in the account or for reasons of confidentiality and/or security I have had to find a substitute, my approach has been informed by that of John Berendt in the seminal *Midnight in the Garden of Good and Evil*, which is to combine the 'strict non-fiction' (his term) with elements constructed with the intention of remaining, as Berendt puts it, 'faithful to the characters and to the essential drift of events', but those are acts, it is essential to emphasise, that necessarily draw on both the inquisitional and imaginative faculties, concisely described by John le Carré (in a different context) as an exercise in 'blending experience with imagination'. Thus some parts are necessarily a fictive reimagining of certain events grounded in the best available evidence. When done, this has been with the clear objective of protecting the personal safety of a contributor or preserving their privacy. The non-scientific narratives are based on what people have said about their lives. This is not an exercise in investigative journalism, nor an official inquiry. That would be a different book. Interesting, but different. Instead it contains accounts of how people have thought and talked about their lives and an attempt to convey what those lives are like. What is elevated to centre stage in this inquiry is what Oliver Sacks in *Awakenings* calls the 'landscapes of being in which these [people] reside' necessitating 'an active exploration of images and views ... and imaginative *movement*' (his emphasis). Thus I have explored developing a somewhat different type of book, blending science with narrative, non-fiction with fictive elements. This is not the place for an epistemological (or any other) disquisition, but I should observe that my approach has also been heavily influenced by two of the foremost

critical thinkers of the last 30 years, Pierre Bourdieu and Loïc Wacquant (including invaluable correspondence with the latter, particularly in relation to my Cambridge research), and their advocacy of an active and immersive engagement with the subject. You will find references and suggestions for further reading in the Methodology section of the Note on Sources at the end of the book. Due to the text's length, the full referencing can be found at the book's dedicated page at the penguin.co.uk website. I should also state that I am an adherent of a critical school of thought that considers social forces and the social construction of both the individual and society as extraordinarily important. But I am also persuaded that there is something more in addition to and combining intricately with those already intricate processes. This book seeks to explore (but does not claim to resolve) that entanglement. Put simply: both nature and nurture are important. Our behaviour is not biology *or* environment, genetic inheritance *or* social learning, but both – and our social learning mechanisms are in any event probably shaped by evolution. The approach and moral stance of this book are a world away from 'social Darwinism' – in fact, they strenuously oppose it. Evolution is a fact, not a value. Therefore the book aims to lend itself to the project luminously articulated by philosopher Peter Singer: the reclamation of the penetrating explanatory power of Darwin's thought for progressives. Very occasionally (rarely) there are biographical sketches that rely entirely on secondary sources. In such cases, all the originating source documents are cited in the reference section. Several thought experiments or hypotheticals appear in the book. They are entirely fictional except where the text refers to a particular

case or event that has informed them. This book is based on research that began nine years ago and that has extended to four continents; it is also grounded in my practice as a human rights lawyer for over 25 years. Where protective measures have been adopted, they have been the ones wished for by the contributor. I am indebted to them all, not least for their companionship in the mound of months I was away, in the dust of every astounding, eye-opening day. They have been and remain the very heart and life pulse of the book.

DDQC
London/Cambridge
May 2017

PROLOGUE

SOME BOOKS BEGIN with an idea, others with an event. This book is of the latter kind. The event that triggered the book took place in a quiet corner of rural England, with a name that conjures shaded streams, gently running with water: Rainsbrook. That place was a prison. The event was the death of a child.

A small boy – he is 4 foot 10, weighs 6½ stone – pads along a corridor in silence. My view is from a high CCTV camera on a metal stanchion on a smoothed brick wall, black-and-white footage (it may not be, but that's how I remember it), no sound, and the boy walks slowly with his back to me towards a room, which is his cell. He turns left, enters. I never see his face. Can you be haunted by a face you never see? He disappears, shuts the door. Minutes later, two prison officers walk, faster, along the same corridor. They walk in silence, but their sheer size compared to the boy seems to fill the frame with noise, with chaos. They also turn left, enter the room, shut the door. A third prison officer comes along, enters, shuts the door. Within minutes, the boy is dead. His name was Gareth Myatt.

What happened in that room?

It was my professional duty – it became my quest – to find out. On a day of pale blue March skies high above the crenulated towers of the Palace of Westminster, when I was appointed Queen's Counsel, my thoughts kept turning to Gareth and his mother Pam. At the inquest into his death, during which I represented their family, Pam asked me a

question: 'Why did they do it – why did they do that to my son?'

I didn't have an answer, or a good enough one for her. Truth in a courtroom is only part of human truth. She didn't mean to affect me like that. She is a quietly courageous person who bears so much, wants to burden no one. What she really wanted was her son back. I couldn't make that happen, but I could try to find a better answer. I took a sabbatical, went back to university. People did not understand. I'm not sure I did. But I was determined to find out what happened in that room.

You do the case. Finish it. Move on. But the case isn't always finished with you. My ensuing investigation, for investigation it was – and mystery, and secret story – was in pursuit of an elusive fugitive: a culprit and quarry which was at the same time the hero of the piece – us. Or more precisely the hidden parts of us. It took me first to the Institute of Criminology at Cambridge University. I was lured on by those few frames: a corridor, a boy disappearing, a door shutting, a question: what happened in that room?

When I continued my research at another place an ocean away, the labs of the Department of Psychology at Harvard, people asked 'What are you doing?' It was difficult to answer succinctly. I was tempted to say I want to know – we *need* to know – what happened in that room. I never said what I actually felt: I owed it to someone to find out.

In my mind, over time, Pam's question slowly began to change. Not why did they do that, but why do *we*? A larger truth loomed behind what she asked. Why do we hurt the most fragile things? What are we? Who are we?

The quest in part was to save a boy it was impossible to save. I see that now. I was chided by an ominously named legal principle: the law of impossible attempts. This is an account of an attempt that was impossible. The data, the clues – the evidence – took me, over the next ten years, on a series of 'journeyings' (as Wittgenstein calls them) to four of the six humanly habitable continents and ranged from ancient Greece and imperial Rome, to modern southern Siberia and the ice mountains of Pluto. Again and again it was necessary to try to penetrate the inner recesses, the secret sanctuaries, of our brain. It resulted in my meeting people undaunted in the face of unimaginable conditions, people who have stolen, people who have killed, people who have spoken out at enormous personal risk, people who have performed feats of unimaginable heroism. And many, many others: people who, I am willing to wager, number among the most extraordinary we have. Remember this bet and hold me to it.

The more I researched the science and the far-flung frontiers of the human experience – the unguessable edges of what we know and what we are, of life and human longing – the more I realised that I was not just researching what happened in that room, that corridor, but in many. There are many such rooms and corridors in our mind. What is more, they are populated by a number of regularly recurring kinds of people. Types. In this book you will also meet them.

In a way, you already know them. Only you don't – not really. You carry them around inside you. But you probably don't know it. In a sense, they are you. Only they're not – not entirely. They inform and shape the most important decisions in your life. But you're almost certainly unaware of their

intervention. They are the essence and instinct of the people you meet. They are the Ten Types of Human.

Who are they? What are they for? How did they get into our head?

For years our brain was thought to function like a general-purpose computer, a little like an old-fashioned telephone system in those black-and-white movies, with everything going through a central switchboard. This view is being challenged. New findings in neuroscience and evolutionary biology indicate that the brain may be more intriguingly fragmented than that. Instead of a computer, the brain instead may be better understood as a series of highly specialised 'modules' – assemblages of banks of neurons and neurotransmitters and the connective pathways between them – each developed in response to specific adaptive problems or evolutionary goals. In other words, to help cope with certain key, recurring problems in human life. This is the concept of 'modularity'.

Indeed the brain may not be just modular – it may be *massively* modular. It may possess many such mechanisms. In what follows, we're going to restrict our focus. We're going to focus on a select number of critical life problems and the processes we are equipped with to respond to them. We're going to focus on ten.

Our brain is not immune to evolution. How it works today tells us as much about our ancestral past as the collections of bones of early humans scattered around the museums of the world. As biophysicist Max Delbrück said, 'Any living cell carries with it the experience of a billion years of experimentation by its ancestors.' The modules that were

relied upon for survival in millennia past still shape our lives in important ways. So:

Ten critical life problems
Ten modules in our mind
Ten characteristic types of human behaviour
Ten 'Types' of human

The book examines ten problems that have haunted humanity, and ten types of characteristic human behaviours that can occur in response. Some of this behaviour will be instantly recognisable; some will be shocking. We shall see.

We are, it turns out, not entirely alone. We carry within us a number of evolved modules. We are, in important respects, an aggregation of the decisions these modules have informed. The concept of the 'Type' of human is an idea, a way of trying to understand a complex process. It is not a precise description of the world, but a way to think about it. As we're going to see in the coming analysis, neuroscience and genetics are vitally important, but they do not provide a complete picture. Culture is also critical. We are unashamedly social beings. Our behaviour is influenced by where we are, what we are taught, what we learn, what we experience. Nurture matters. But so does biology.

But what do these Types do? Why do we still need them? And what do they tell us about human nature today?

I have been a human rights lawyer for over 25 years. My practice has been about carnage. The hidden parts of us that are the stuff of the book have significantly affected the triumph and tragedy of the human race. As Harvard professor E. O. Wilson states, 'The worst in our nature coexists with the best' – the 'monster in the fever swamp'. This is not a new

thought. In fact, it is almost our oldest. Sophocles saw it. In his imperishable *Antigone* he tells us, 'Many things are both wonderful and terrible, but none more so than humans.' We want to believe humankind is good, but we see so much wrongdoing – carnage – around us. Where does the truth lie? Each time the chaos comes it is new and very old.

All this led to the three core questions the book asks. They are these:

Who are we?
What are we?
Who is inside us?

Ultimately the book brings to bear the latest cutting-edge research science to offer a different way to think about these and a series of linked questions that flow from them: *Why are we like this? Why do we do the things we do? What choice do we have? Who (or what) in the end does the choosing?*

Let us begin to find out. For that, I will have to take you to another corridor – one in a school. But it is a very particular type of school. And I must introduce you to a person – a very particular type of person. The Kinsman.

The Kinsman

It is every parent's nightmare.

You come out of the coffee shop blinking in the late morning sunshine and you realise your mobile's been on silent. You instinctively glance at its screen as you do one hundred times a day – *must* clean it properly. A text message arrives, then another, a flurry of them. You notice a series of missed calls. Something's happened – but what? You begin to

read the texts – they're all telling you the same thing, the message horribly the same. The one you never dreamed you'd hear.

You hardly notice your coffee splashing over your shoes. A man is prowling around your child's school. The man is armed with a gun.

You're just a couple of streets away, you rush down there, but find that all is unnervingly quiet. Summer sunshine casts soft shadows of the schoolyard trees, a lone bird skims across the pale blue sky, but there on the periphery of your vision you see the door to the classrooms – kicked open. Two police officers sprawl on the concrete by the entrance, dead. The bird disappears into the treeline as you enter the corridor – the one with your daughter's classroom. Then you hear them: shots in the next hallway.

You advance, more urgently now, until you glimpse through the glass in the classroom door the many traumatised pupils, wide-eyed, huddled together, hiding under tables. You try in vain to see your daughter. You can't. You gesture to the children, but they're frozen with fear. You are literally going to have to pull and drag them out. But where is your daughter? Then you hear heavy breathing, heavier footsteps – approaching. Heavy boots, a click, more: click, click, *click* ... a gun being loaded. Time is running out. Suddenly you hear a voice from a broom cupboard by the exit, all the way back down the corridor: it cries your name. Your daughter. What do you do?

Do you abandon the class with the 24 children? Do you stay and try to defend them? At the far end of the corridor, your eyes fall on another body, a teacher who tried and failed to

stop the gunman. Then another shape, sprawling, motionless – another teacher who met the same fate.

This could be about being heroic. All of us have the capacity for extreme courage. But if you confront the gunman, assume it's certain that like the police officers and the two teachers before you, you will be killed. So confronting him will be futile: he will shoot you as he has shot them. He will shoot you then shoot all the children, including your daughter, but you will have tried to be heroic – and we all want to think of ourselves as heroic. But what other choices do you have? If you go to the class you can lead them out of the window to safety. If you go to your daughter, you will be able to get her out before the gunman arrives. *There is just not time to do both.*

So what do you do? It's not easy. Something like this never is. But people in these situations have to make a choice. What's yours?

Save the 24 innocent children of other decent parents or save a single child of your own. That is your dilemma. The worst of your life. Perhaps of anyone's. But there it is.

You can hear the gunman's footsteps approaching, the clicks of the weapon being primed, you can see the eyes of the children, you can hear the voice of your daughter calling you, beseeching you – what are you going to do?

You are probably experiencing a whirl of emotions. So to make things clearer, let me reduce your choice to three equations:

1. Confront the gunman, everyone dies = 26 deaths (24 + 1 + 1)
2. Abandon the class, the other children die = 24

deaths

3. Abandon your daughter, only she dies = 1 death

What do you do?

You Were Not Alone

I know what you would do. I know what you'd do because I would do the same. Because virtually everyone we know would do the same.

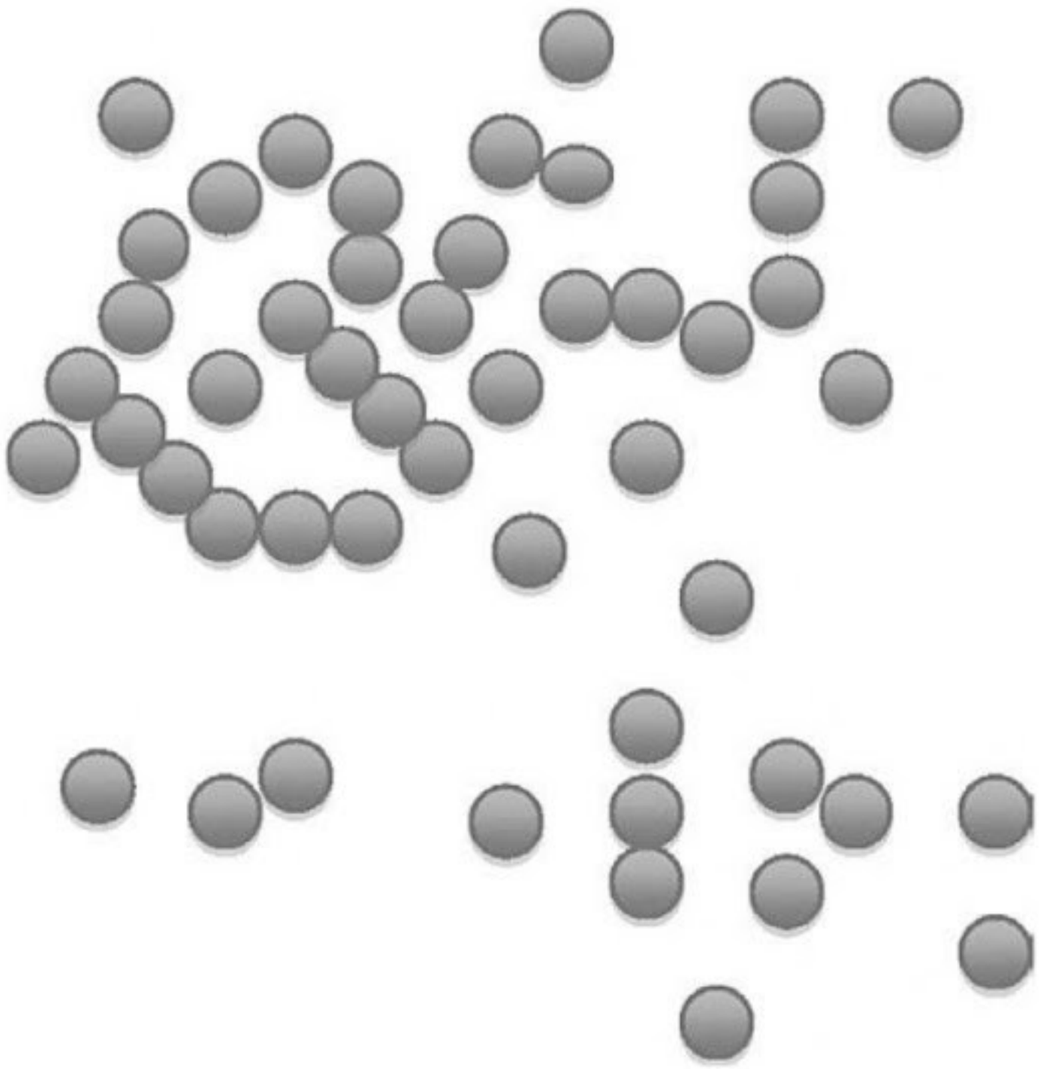
But can I try to change your mind?

Imagine the choice is between your child and 50 children. Does that alter things? It must surely alter things: 50 lives for one. Below are 50 dots. Imagine each has a child's name. I plucked some from a random name generator on the Internet.

Todd, Sarah, Suresh.

Ellen, David, Jacinth.

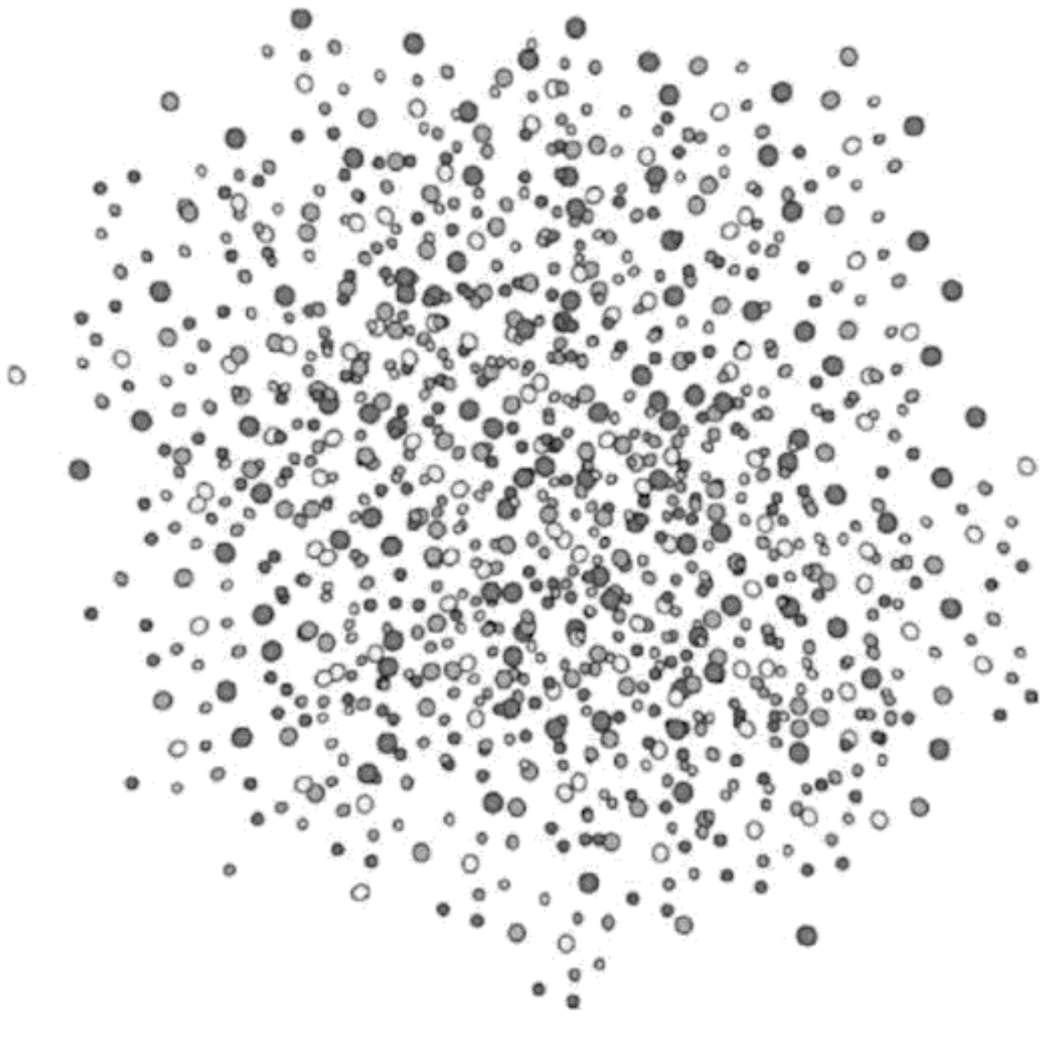
Aston, Tiresias (the blind prophet of Thebes – it *was* random). Imagine each is the face of a different child.



50 dots

Will you save these 50 dots, these 50 children? Or just your own?

What about 100 children? No change? What about 1,000 children? Twenty boxes full of dots, full of children? Still no.



1,000 dots

What about one million – one thousand *thousand* other children – surely that changes your decision? Let us write it out in numbers so you can see the sheer magnitude of the lives at stake: 1,000,000 – all those noughts, that's how many lives you can save, if only you give up one.

Still not enough? What if it were a choice between your child and a young brilliant scientist, and she's stumbled on the vital breakthrough to curing cancer. But here's the problem: she hasn't yet had time to tell anyone about her world-altering discovery. Think of all the generations of unspeakable suffering and grief you will save. Or do you save your child? Can you live with the condemnation of the generations if you choose your child? Can you live with yourself if you don't?

If it's possible, step back. Think about what you're seriously considering. You're contemplating consigning generation after future generation to suffering the continuing blight of cancer, just to save one child. What would you do?

I know what you would do. I know what we'd both do. But why?

This is what the book is about. This and questions like it. The truth is that as you rushed down that corridor towards the broom cupboard, there is one fact you may not have realised:

> You were not alone.

The argument of this book is that with you at every step, in fact helping *inform* every step – to advance, retreat, waver – was the first of the Ten Types of Human that are the central subject-matter of what follows. You've just met the first one. Let's give it a name – the Kinsman.

How did this character get into your head? What is it there for? What is it like? This book proposes that it is a psychological mechanism that has evolved over great stretches of our evolutionary past to respond to certain repeating life problems. Its functioning interacts with our learned behaviour, our socialisation. Thus nature and nurture connect and complicate. While you were in the school corridor you may have caught yourself saying that you *ought* to be doing one thing, but something deep inside you *wants* to do something else: to head to the classroom, to head back to the broom cupboard. You will find out much more about the Kinsman soon, but you already know something tremendously important: it will sacrifice dozens or even hundreds of other children – even a thousand – for just one of its own. We all want to protect our children. Everyone knows

that. But do we really appreciate the frightening strength of that drive? How aware are we of the ruthless extent that it chooses our child over others? Why is it like this?

Did you 'break'? This is the term we've pretty quickly settled on when I've spoken to groups about this problem. Did you reach a point at which you left your child? Some people – very few – break at 24. Far more when it gets to 50 other children. Many more find their breaking point is closer to 100. I have a friend who did not break even if the toll would be every single other child on the planet. Until she realised that she wanted a child for her daughter to play with – so everyone else minus one, that was her number. That friend (she's still a friend) is a lawyer.

We all have a number. What's yours? What do these numbers say about us? By our numbers shall we be known? These are the kind of questions this book is about. Questions and characters. Characters like the Kinsman. This has been just a brief introduction to one – the Kinsman will come again. But there are others of the Ten Types we must meet first. Like the subject of the next section: the Perceiver of Pain. Here they are in the order you will meet them:

The Perceiver of Pain
The Ostraciser
The Tamer of Terror
The Beholder
The Aggressor
The Tribalist
The Nurturer
The Romancer
The Rescuer
And finally, again, the Kinsman

But in order to understand the Ten Types, we must have examples. Thus in the following ten parts of the book – one for each Type – I triangulate my approach.

Firstly, we explore the mental modules involved, invoking the latest research in psychology and neuroscience.

Secondly, personal narratives, human stories from a number of exceptional people I've worked with and met, will show how the Types affect people in their everyday lives – and how these remarkable individuals have found ways to face and face down their more damaging effects.

Thirdly, a number of hypotheticals will offer you the opportunity to experience some of these mechanisms for yourself.

In this way I hope you will not only hear about the Types, but see them, *feel* them, and thus arrive at a richer answer to those core questions: *Who are we? What are we? Who is inside us?*

Therefore I hope that the coming pages will reveal why we are not what we think – and how this is a good thing. How it opens up intriguing possibilities for knowing ourselves in a new way and seeing the world differently. We will see a number of things that are not right with the world. The book will offer ways to challenge them. These solutions are grounded in the approach of Spanish philosopher Manuel Castells, who said that in order to challenge harmful power and its abuse, we must unveil its presence in the workings of our minds. This is the most essential mission of this book.

It offers a new examination of the nature of human nature. It is a quest. To look in a new way at how human beings hurt other human beings – and in doing so, to find ways to change this. Ultimately that is what *The Ten Types of Human* is about: finding fresh ways to be free.

Throughout my work on this book, I constantly kept close at hand an increasingly tattered news report about the boy I never met and could not save. Sometimes those few frames from the high CCTV camera would flicker in my mind; sometimes the screen would go blank, then slowly the picture would reassemble: a corridor, a boy disappearing from it, a door shutting, a question: what happened in that room?

My other constant companion was the simple question of his mother Pam – why?

PART I

THE PERCEIVER OF PAIN

It is true that I suffered captivity in
the fortress of Yakub the Afflicted.

Richard Francis Burton, *The Lake Regions of Central Africa* (1860)

ONE

The Argument

THE TENSION YOU felt when agonising between protecting the 24 children in the classroom and saving your own child, was in part generated by an aspect of your mental make-up – a 'Type'. The Kinsman. What are these Types? What do they consist of neurologically, functionally, practically in everyday life? What sort of a thing are they?

To understand, take a boy like Anthony.

'Why do you want to talk to me?' he asked. 'I'm nobody.'

At the beginning, it's true, my mastery of our language of mutual communication was too rusty to explain why I believed he had something crucial we needed to hear. My fault: I should have brushed up better. But I persevered. More accurately, he did. And here it is: the story of the boy who thought he was nobody. We met in an old shack, just close enough to the shore to feel the sea breeze, but which offered scant shade from the unsparing African sun. So Africa: the other side from those ancestral savannahs, but Africa nonetheless.

'When it happened,' he said, 'I was doing nothing.'

A chicken wandered past our feet on vital business of its own. So: nobody doing nothing. How very promising. At the time he was talking about, a few years before, Anthony was 11 years old, and like many 11-year-olds he would do a great deal to get this one thing, the object of his desire. Although

the world – and I mean the *entire* world – knows it as an iconic American product (it was conceived by Atlanta pharmacist John S. Pemberton in 1886), few realise that one of its constituents, the kola nut, is actually native to Africa. But at that precise point in his life, Anthony couldn't care less: he would just give almost anything to get it. And that's how it started: with Coca-Cola.

That first time we met, in a shack surrounded by boxing gyms and signs for Ovaltine and the Almighty's undying love, near the Gulf of Guinea, near an old slaver fort (those things are connected), I was perplexed. Anthony reminds you of a ball. Not because he is round – he most certainly is not – but because like a rubber ball there is something elastic and durable about him. Something that bounces back; that's had to. His greatest love is indeed boxing, and he finds it hard to stay still, forever bobbing and swaying as if constantly in some imaginary bout in the ring. He has limbs that look like linguine, but in fact are steel wire. He has big almond eyes. At times, later, when he was telling me what actually happened, his eyes would well up and he'd fight it, fight himself and everything he knows – too much for a teenaged boy to know: the strange underwater forests, the snakes ('*Les serpents, les serpents*'), the day of rain and lightning, the body in the boat. But it started off joyously. With the chance of Coca-Cola.

Fictional depictions of human trafficking portray it as starting with predatory snatch squads, kidnapping, abduction. Sometimes it does. But other times it's much more mundane. With Anthony it started by going to the local store. The shop was in his small town in Ghana. 'My father sent me to the store,' he said. Anthony and I communicate mainly in French – his mother is from the French-speaking country of

Benin further along the coast; he had come to Ghana to be with his father.

After that first meeting, I wrote in my notebook:

Does he like me? Does he <u>need</u> to like me?
The British barrister, the boy from Benin.
He needs to trust me.
What's trust?

At the shack near the seafront, Anthony told me, 'You know, my father, he gave me money. He said I could buy a Coca-Cola.'

That day that changed his life was in the long, dry season and everyone was thirsty. It was as though the rain had forgotten how to come. Anthony went to the store to get a Coke. He never returned.

The story of Anthony you are about to read – why he never returned, what happened on the other side of that door – tells us something vital about one part of who we are. But right from the start, let me be clear about what the book is seeking to do: it will present an account of human nature. Not *the* account. An account.

We all have pet theories about human nature. As do all religions and political parties. Think of some of the truth claims produced by less gender-sensitive times:

All men are sinners. (Pet theory)
Man is born free, yet everywhere he is in chains. (Theory)
We hold these truths to be self-evident, that all men are created equal. (Theory)
All animals are equal; some are more equal than others. (Counter-theory)

The Uber driver who conveyed me across Florida in an unnervingly militaristic Jeep (we'll come to Florida in Part II), well, he had a very distinctive theory of human nature. It involved Donald J. Trump and people from the other side of the wall Trump says he wants to build. Thus this book is not offered to you as 'the one and only Truth'. It is grounded in two things: scientific fact and scientific theory. A scientific theory is a wider kind of theory than the simple truth claims above. It is a series of propositions from which you can make predictions that are testable. The book's prime theory is based on a mass of research science and converging lines of evidence in evolutionary biology, neuroscience and several branches of experimental psychology – what has been called a second Darwinian revolution. Our prime theory is as follows:

Theory #1

THE HUMAN MIND IS MODULAR

By this we mean that the architecture of the mind includes certain specialised, information processing, computational programmes. Same old brain; new way to understand it. A better way, a growing number of scientists now argue. Here is how the argument leads to and then flows on from that prime theory:

1. Our physical bodies have been shaped by evolution.
2. They consist of a series of highly specialised (adapted) components or organs.

3. The mind has also been shaped by evolution.
4. It also consists of a series of highly specialised components.
5. These components – or modules – have evolved when confronting certain repeating, real, highly relevant survival and reproductive challenges.

Propositions 1 and 2 are obvious to most people. So forgive me for not labouring them. If you are interested in them ... actually, why *shouldn't* you be? How many more interesting things are there than why life *is* – just is. Why there is life rather than non-life and *this* kind of life. To get at this, we're blessed with Richard Dawkins' *The Selfish Gene*, Daniel Dennett's *Darwin's Dangerous Idea*, Stephen Jay Gould's *Wonderful Life*, a magisterial account of the stunning burgeoning of new life forms in the Precambrian. More recently, a concise but compelling addition to the evolution literature is Jerry Coyne's *Why Evolution Is True*.

These works are backdrop, run-up to the wicket, advance battalions. In the pages that follow, the concept of evolution is so pervasively important that here is Coyne's brief refresher:

> Life on Earth evolved gradually beginning with one primitive species – perhaps a self-replicating molecule – that lived more than 3.5 billion years ago; it then branched out over time, throwing off many new and diverse species; and the mechanism for most (but not all) of evolutionary change is natural selection.

This book does not seek to *prove* evolution. It examines its implications for the human mind. It does not provide an anatomical or physiological disquisition of the human body and its functional subunits or organs. Instead it considers

how an equivalent functional specialisation may apply to our brain and thus our mind (approximately: what the brain does). So it uses Propositions 1 and 2 as building blocks. From them we infer what our mind might be like. It is an argument from analogy. We infer some qualities of the mind from how our physical bodies have been built and developed over time by genes. Some gene mutations were better, some worse for survival and reproduction. Microscopic advantages, when elongated over aeons, mattered greatly. Thus some arrangements survived, were reproduced, flourished and spread through populations in the grand and gruesome cosmic sorting process, the unsparing battle for existence in a world of scarcity and limit. And here we are. With our module-packed physical bodies. But what about our mind?

I first began to understand this because of Anthony. Shortly, I will return to him so you can see for yourself. But there is something else you need to know before we go to those underwater forests infested by water snakes and simultaneously grapple with the question posed in the single most famous case in English law: who is my neighbour – what duty do we owe to one another? First we must follow the overarching argument through and understand two things: the evolved mind and modularity. Then we will go to the lake that is not a lake and meet children who, in almost every way, are not children. One of them is Anthony.

Thus we come to **Proposition 3**: the evolved mind.

The argument from analogy is supported by a growing mass of evidence that the mind has also been shaped by this same process of cosmic sorting – evolution by natural selection. Indeed, the evidence and research you will read in

this book supports this plank of the argument. But nonetheless I invite you to read the material with an open mind and reach your own conclusion. Darwin foresaw these developments about the human mind. As he drew his world-changing *Origin of Species* to a conclusion, he wrote that

> In the distant future I see open fields for **far more important researches. Psychology** will be based on a new foundation, that of the necessary **acquirement** of each mental power and capacity **by gradation**. (my emphasis)

Yes: mental powers acquired by *gradation* – by gradual, incremental change. Evolution by natural selection. A simple question puts the point. If almost everything about our physical being has evolved, why not our brain? The brain has billions of neurons: nerve cells that carry and transmit information. It may have something like 100 billion of them. Via networks of neurons, the brain processes information received externally from the environment, internally from ourselves. Like the rest of our body, the brain is built by genes. The process is, after all, *genetic* evolution. Some genes are 'selected' because they confer durable survival and reproductive benefits; others are not because they do not. Natural selection is simply the process regulating what gets through to the next generation, who gets through – ultimately, what works in a particular environmental setting. If our bodies have evolved, and our brains have evolved, why should what our brains *do* not evolve? Simply: some of the variants in what the brain has done may not have worked so well. They may well have not 'got through'. Seen in this light, why should our mind be immune to evolution? Put the other

way around: has virtually everything of serious importance about our body evolved except our brain and what it does?

The best statement by far of this approach is by Australian philosopher Peter Singer, whose work we'll come to shortly. Singer states that it is time 'to take seriously the fact that we are evolved animals, and that we bear the evidence of our inheritance, not only in our anatomy and DNA, but in our behaviour too.'

On **Proposition 4**, modularity, just look around.

Modularity is everywhere. When we deliberately set about building complex systems to perform complex tasks, we build them modularly. That is, with a lot of smaller component parts. Cars, phones and fridges, planes and political systems. In doing so, we are imitating nature. The principle of division and subdivision of tasks yielding outcome benefits can be found everywhere. In engineering, computer science and coding – on the back of a banknote. Consider the rear of the £20 note.

Here is the Bank of England celebrating functional modularity. Adam Smith wrote in his *Wealth of Nations* about the division of labour in a pin factory and the great increase in the quantity of work that results (you may just be able to read that on the note). The meta-task of making a pin was broken down into smaller specialist units or modules. It's appropriate to mention Smith for while at Cambridge, Darwin read *The Wealth of Nations*. Then when Darwin wrote *On the Origin of Species*, Smith's 'invisible hand' of the market became the silent and insensible workings of the 'hand of time' and natural selection. It is this unobservable process that produced mental modules over what Darwin calls 'the long lapses of ages'. A module is simply a functional subunit. Its job is to perform a specific task – like part of the process of making a pin. You'll find modules everywhere in nature. So what about the human mind? Can natural selection have created specialised programmes like the Kinsman?

For us, all this leaves two important takeaways. First, modules in nature are ubiquitous. Second, it is very likely that one of the most sophisticated and complex mechanisms in the known universe – the human mind – is modular. And, as we'll see, that's what the evidence indicates.

Meticulous neurophysiological experimentation has shown that the brain has different areas implicated in different functions. But note two things. Each area of the brain is not restricted to performing only one function. Equally, each area works in a network with others. The occipital lobe at the lower rear of the brain, for example, makes sense out of the visual information that pours in through the eyes to the retina, and which is then transmitted via the thalamus to the back of the brain (and from there to the parietal and

temporal lobes). A series of structures, together called the limbic system, is associated with what is sometimes called the Four Fs: Feeding, Fighting, Fleeing and – getting lucky. And the limbic system is a perfect example of what we were considering: it is a network of structures, including the amygdala, the hippocampus and the hypothalamus, working in concert. So in the brain, unquestionably, function is to some extent localised.

There is therefore a growing weight of scientific evidence indicating that the human mind has organisational units or modules. But what are they like?

Proposition 5: these modules evolved in response to certain important regularly recurring life problems. What these modules are like and how they affect our behaviour is the substance of the book.

These mental modules, embedded in the human nervous system, process information, particularly emanating from stimuli and challenges in the environment. The argument is that these modules developed over evolutionary time, as many things develop, due to selection pressures, in the ongoing struggle to fulfil the two fundamental evolutionary drives: to survive and reproduce. Thus the modules are the work of natural selection. They have encountered, engaged with, and helped us solve life problems – existential threats to our survival and flourishing. They are functionally specialised, directed at key adaptive problems. They have enhanced 'fitness': the relative frequency of the genes of their host in subsequent generations of the relevant population, the gene pool. They do not determine behaviour robotically, but they do influence our feelings, thoughts and actions. This

is particularly so when we are confronted with the branching sub-problems of survival and reproduction, such as mate selection, raising offspring, living in groups, avoiding predators, punishing transgressors. We will look at ten such problems in the ten parts of this book.

So those are the five planks of the argument. Leda Cosmides and John Tooby, two founders (legends) of evolutionary psychology, nail it, as they often do:

> ... our abilities to see, to speak, to find someone beautiful, to reciprocate a favor, to fear disease, to fall in love, to initiate an attack, to experience moral outrage, to navigate a landscape, and myriad others – are possible only because there is a vast and heterogenous array of complex computational machinery supporting and regulating these activities.

Of the five propositions – I make no bones about it – 1 and 2 are *assumed*. They are taken as a base to proceed from. Others, the more interesting and controversial 'stuff', the ten parts of the book will examine. Propositions 1 to 5 together constitute building blocks for formulating a theory about human nature. It is a theory in the sense that it can help explain the evidence and generate some predictions about how humans are (probabilistically) likely to behave. The Ten Types build on this theory.

Here is our prime theory, fleshed out – supersized:

Theory #1A

The human mind is an array of highly specialised mental modules that perform different functions, and which evolved through natural selection to solve life challenges

that recurrently confronted our ancestors over long stretches of evolutionary time.

Building on that theory, the Ten Types is a tool to understand something unique and extraordinary about our evolved nature. As Daniel Dennett reminds us, in the history of thought, thinkers have always used vignettes, models, stories – for example, Plato's Cave, or Descartes' Demon. They help us think about the problem.

Modularity is a theory that helps to explain some of the mysteries of human behaviour. Particularly of what human beings do to other human beings. Both good and bad. The Ten Types help us to explore and understand some features of the modular mind. What its working out might mean on a human level.

There have been many analyses and postulations about the complicated and fragmented nature of the self. Neuroscientist V. S. Ramachandran puts it starkly: the idea of 'a single unified self "inhabiting" the brain may indeed be an illusion'. Robert Kurzban and Athena Aktipis state that 'the self that talks and controls muscles is but one subsystem in the modular architecture'. Psychologists Douglas Kenrick and Vladas Griskevicius have identified from the mass of our complex behaviour a number of 'subselves' – versions of ourself subconsciously selected by our nervous system to take the 'driver's seat' at any given time.

In this book, I conceive of these complex systems, and the other 'selves' associated with them, as 'Types' because they exemplify and embody particular types of human behaviour. The book's deepest purpose is to understand how and why

these Types are implicated in harmful human behaviours and then suggest ways to change those patterns of harm.

Our first example is Anthony.

To understand what happened to him, why this child in sub-Saharan Africa who thought he was nobody, and was doing nothing, matters, why he casts light on one of our evolved mental modules – the Perceiver of Pain – you must understand the place. And to understand the place you must understand its geography. It is like none other on earth.

TWO

The 21,000

IF YOU UNFOLD an old-fashioned map of the world – the Imperial Federation map of 1886 for example, an imperial relic with the British Empire inked in salmon pink- and slowly trace your finger 3,000 miles due south from the UK, you will pass over Morocco and Mauretania and Mali until you reach sub-Saharan Africa's vast Volta basin.

This basin of the Volta river is a complex meshing of hundreds of tributaries and waterways that spread across six West African countries: Mali, Ivory Coast, Burkina Faso, Togo, Benin and Ghana. And in Ghana lies an immense body of brooding water: Lake Volta. Through its deceptively placid surface – the area suffers from severe sudden thunderstorms that make the lake lethal – denuded tree branches stick out, thin fossilised fingers, frozen in time, pointing to the sky. But the lake is not real. At least, it did not exist, not even as an idea, until 1915 when British geologist A. E. Kitson, KBE, CMG thought, with the kind of colonial swagger characteristic of the best and worst of Empire, 'Let's stop that river in its tracks.'

Albert Ernest Kitson – 'Kittie' to his friends – led a remarkable life. He was born in Audenshaw, a Cheshire cotton town now swallowed up by the sprawl of Greater Manchester. His parents, a Mancunian and his Scottish bride, emigrated first to Nagpur in India, then to rural Australia, where Kitson

learned to handle snakes, a feat that the Ghanaians he would later meet thought imbued Kittie with mystical powers. He was an outstanding geologist and was knighted in 1927. His aptitude and vast imagination led to a simple, staggering suggestion: dam the Volta, dam the whole damn thing. Like many things in the British Empire, Kitson's idea was about transformation. The wild power of the river water would be transformed into electricity, which would transform the bauxite from the Kwahu Mountain area into alumina and then into aluminium ingots, with the result that the soil and substance of Ghana would be transformed into money.

In 1937 Kitson died of pneumonia and influenza at Beaconsfield, Buckinghamshire. A eucalyptus tree and a fossil eucalypt were named after him – as was a reptile (*Panaspis kitsoni*), a kind of little slithery eel-like lizardy thing with legs. But in 1965, a full 50 years after his initial idea, there was a much more significant legacy. Ghana's first post-independence president, Kwame Nkrumah, authorised work on Kitson's dam. An enormous pile of stone and rock was dropped in the way of the water at Akosombo. The result was devastating: the creation of the largest man-made lake by surface area on the planet. Lake Volta is over 200 miles long. That fact is easy to state. But imagine a lake stretching from London to Liverpool or from the Brooklyn Bridge to Boston. That's how long.

The White Volta and Black Volta rivers were restrained by the immense Akosombo Dam with its six gushing spillways, generating hydroelectric power not only for Ghana but for eastern neighbour Togo as well, and even for the next country to the east again: Benin. (We will return to Benin.) The scheme was to play a crucial part in Ghana's socio-

economic development, the plan being to produce 200,000 tons of aluminium per year. There is indeed now a smelter at the port of Tema on the coast. But the result was devastating in another way.

The river upstream of the dam flows with a very flat gradient, about one foot per mile. This meant that the backed-up water created a deluge that flooded 740 villages. In total 78,000 people were made refugees in their own land. But human beings are resilient. Soon a series of small fishing communities sprang up around the fringes of the newly formed lake. There are now over 1,200. Some were populated by local people who previously had been pastoralists and farmers. But there was an influx of migrants from other parts of Ghana, tough coastal people with fishing expertise, intent on harvesting the lake's 120 species of fish, including many types of tilapia. The new migrants now outnumber the historic locals and came notwithstanding the dangers. The area is notorious for onchocerciasis – river blindness, caused by repeated bites from blackflies.

The fishing that takes place at the lake is of a very particular kind: long, arrow-like wooden boats, small catches, and fish that are ever smaller as the waters are over-exploited. It is desperately subsistence stuff. Therefore there's the need to cut costs to the very minimum. Small fingers are needed to pick the small fish from the nets. Children are needed.

But the margins are so small that for some fishermen not only is child labour needed, but the cheapest form of it: child slave labour. And that's what you've got. Estimates vary, but there are thought to be 21,000 children engaged in hazardous work at the lake – labour that is potentially life-threatening.

Of that number, it is not known how many have been sold into slavery.

What has this to do with any of us? I knew only a few of these details before I met Anthony. Still, again the question: what has this to do with us? Slave children fishing in arrow-like wooden boats on a lake in a land hardly any of us really know. I began to understand it because of him. Although he did not know, it was his gift to me.

You don't even have to force yourself to get up early.

It's the thrill of getting away, of leaving the city; the simple, silent intoxication of cleaner air. And so you're walking in the early sunshine, relaxed – didn't even recharge your mobile. The lake is a local beauty spot, remarkably close to the metropolitan area, but on the other side of a heavily wooded hill from the clogged arteries feeding cars and commuters into the city. But here it is: a haven, an oasis, something like a minor miracle. It all seems perfect. Only it's not. Something is wrong.

You've been told that local kids go night fishing at the lake in the holidays, and a number of rare species of bird rest there before heading south – some flying 3,000 miles to sub-Saharan Africa and the Equator. You pass through the outer fringe of trees: chestnuts, beech, mature oaks. You glance down towards the water, the sun dazzling as it bounces off the sheet mirror stillness of the surface. When two things force their way into your thoughts. Yes. Something is definitely wrong.

First, you notice a small bike, carelessly propped against a tree. It's slid down, handlebars turned invitingly askew. The sheer brilliance of the water-reflected light blinds you, a low

You think of those you love. Wouldn't they want you to help him?

Think of those who depend on you: would they want you to risk your life? *It only takes seconds to drown.* But so many people do depend on you. *Danger of Drowning – No Swimming.*

Do you go in?

THREE

Here Be Dragons

THIS WAS ALMOST exactly the dilemma that faced the friends of Dylan Aaron in 2010. Dylan was 17 years old and he ended up in John Pit pond, a local beauty spot near the metropolitan area of Wigan. The water is black and dangerous. Beneath the surface reeds and plants await. Along with the sucking mud they tangle the legs and trap the feet of anyone swimming in it. People have died there. Locally it is known as Deep Pit.

Dylan's family had been involved in an ongoing feud with another local family, the McGrails. After a series of skirmishes, the events culminated in a fateful confrontation in May 2010. At 3am after a night out with his friends Dylan returned home. He saw that their family car had a stone slab smashed through the windscreen. He knew who was responsible. And he was right.

Drew McGrail was night fishing at Deep Pit. As Dylan approached, a fight broke out. The two tumbled down the steep bank towards the water. It was then that McGrail, ten years older, threw Dylan into the lake. He said, 'Drown, you little bastard.' Struggling to keep his head above water, Dylan cried out, 'Help me, I can't kick my legs.' McGrail said, 'Let him die. If he gets out, I'm going to kill him anyway.'

Friends of Dylan, desperate, tried to get in the water. At first McGrail stopped them, but one managed to jump in. It

was too late. Dylan's head, his outstretched arm, disappeared beneath the waters of Deep Pit, where he died.

I mention this for two reasons. Firstly, to indicate how deceptively lethal the lake is – it is so easy to drown in a place like that, beautiful or not. But secondly, because despite the obvious danger, one of Dylan's friends tried to save him. What is all the more stirring is that he tried to save Dylan despite the fact that there had been another incident at John Pit pond just three years before. Another death. One that received national attention.

On the day Anthony's life changed, he simply did something he'd done several dozen times before: he walked to the local store in Ghana. As he did so, he could smell someone cooking fowl: the enticing odour wafted into his nose and jumped straight into his brain. He was hungry, so hungry – but despite the heat, his feet were lured on by one thought ... Co-ca Co-la. He *was* 11. And his father had said he could get a Coke. What if he could get a Coke *and* some of the bird to eat? Life was good. It had been hard in Benin; they had struggled. His mother had tried her best. But now life was good. Sometimes his father beat him, but it was to make him tough. Anthony wanted to be tough.

Sometimes when you're speaking to him, he'll narrow those almond eyes, squint at you. A gunslinger look. He would later tell me what he really felt at our first meeting. 'I was thinking, "Who is this person? He speaks worse than me."'

All true: my French *was* rusty.

'Why did you come here?' he asked me, genuinely.

Frankly, I didn't know where to start. I said that a boy had died in a prison in England and I was trying to understand

what had happened. It meant speaking to lots of different people about lots of different things. This surprised him, not my diffuse and imprecise search, but the location in which the death occurred. What he knew of the UK was Premiership football.

'They *kill* children in England?' he said incredulously.

'*C'est compliqué*,' I said and immediately regretted it. In truth, having to admit this so far from home, I was ashamed. But in truth, yes, we had. I should have said it.

'But why are you doing this?' he asked.

I tried to explain that I was the family's lawyer, but am not sure I was able to help him understand what a lawyer does. The more I talked, the stranger it sounded to me, there under the hot West African sun, what a lawyer actually is. In that moment, we both seemed a long way from home. 'I'm trying to find out why he died,' I said.

'For who?' Anthony asked.

It was a question worthy of any lawyer. The answer, it was – *compliqué*. Life, like the law, is not an exact science. 'I want to know,' I finally said.

Later, almost at the end of our time together, he told me, 'That first time we met, I was going to leave. Then I thought, "Okay, I give him *one* chance."'

Which is interesting. No one had ever given Anthony much of one. In my notes I wrote: *Chances. When do we give each other chances?*

On 3 May 2007, Jordon Lyon was out with his step-sister Bethany, aged eight, collecting tadpoles from the edge of Deep Pit. But the banks are treacherously steep. Bethany slipped into the cloying water and mud. Without thinking,

Jordon dived in to save her. Two anglers were able to pull the girl free, but Jordon was sucked further in. He disappeared.

As the alarm was raised, two PCSOs (Police Community Support Officers) turned up on bicycles. They arrived minutes after Jordon vanished beneath the water. What they did next caused what the major newspapers called a 'national outcry'. What they did was heavily criticised by Conservative party leader David Cameron. Cameron said it was an 'extraordinary farce'. The PCSOs did not go in after ten-year-old Jordon.

As the controversy intensified, a Home Office spokesperson came to the defence of the much-maligned officers. She said, 'Guidance advises PCSOs not to enter into life-threatening situations for which they are not trained.' That was the official line. They are not trained, so they had no obligation to help.

But this official stance begs a question of the most fundamental importance: trained in what? They may have not been police-trained to intervene, but were they not trained by life? Are we? What would you have done? As Jordon's stepfather Anthony Ganderton said, 'You don't have to be trained to jump in after a drowning child.' Indeed Paul Kelly, the chair of the Police Federation in the area, accepted, 'People throw themselves into rivers and ponds to save people every day because it's the right thing to do.'

The drowning of Jordon Lyon raises the question of what our obligations to one another consist of. What do we owe to those around us and how do our evolved mental structures affect it? It was the central question in the most famous case in English law, *Donoghue v Stevenson*, the case that many people who know nothing of the law nevertheless have heard of, the modern launch pad of the law of negligence: the case

him up in life. 'I would miss my mother and sisters,' Anthony told me. 'But I was happy also because I wanted to learn. I wanted to go to school.' So Anthony was sent back to Ghana to be with his father. And now his father had sent him to the shop with the tin roof.

Anthony went through the door, never to return.

FOUR

A More Total Darkness

TO RECAP: THE argument of the book is that we've evolved a number of mental modules. They are associated with characteristic types of human behaviour. Through Anthony we are exploring one of them: the Perceiver of Pain. But what do these modules look like? Can we *see* them? If so, where?

Though they operate like discretely functioning subunits, remember that they are systems. Thus they're not plug-ins like the SIM card in a phone or the spark plugs of your car. They are likely to be smeared across several connected areas of the brain: it is networks of structures that are important. They could look, as Steven Pinker memorably put it, like roadkill.

They are unlikely to depend on one gene. They are likely to be associated with many. They are unlikely to be neatly isolatable. They're likely to be messily integrated with other systems, overlapping, connecting, co-opting. So we're unlikely to be able to prod and probe them with tweezers. But they work. And thus we do. Therefore, just as our bodies have evolved to house numerous specialised organs tailored for specific tasks (the eyes for seeing; the heart for pumping precious oxygen-carrying blood), so it is likely that the mind has also evolved with specialised units fit for purpose – tailored for the task.

I cannot emphasise too strongly how controversial views like this once were – and indeed have recently been. In 1616 Galileo was informed by the Roman Inquisition that the suggestion that the Earth revolved around a stationary sun was'foolish and absurd in philosophy; and formally heretical since it explicitly contradicts in many places the sense of Holy Scripture.'

Galileo was ordered to abstain from teaching or defending his blasphemous heresy. By publicly recanting, he saved himself from the purifying fires of blind faith. I have often hoped that it's true that after his forced renunciation, Galileo whispered, '*E pur si muove*' – 'And still it moves'. Darwin finally published *On the Origin of Species* in 1859, but if at the time of Galileo, some precocious visionary had had the temerity to say, 'Oh, and by the way, in addition to the Earth moving around the Sun, our bodies and minds have developed glacially slowly over countless millennia through a biological process that seems to govern all nature,' they would have been burnt at the stake.

In the 20th century, another kind of orthodoxy gained a great deal of prominence, this time within academic circles. It was the view that we, *Homo sapiens*, have no inherent nature. It was put by Spanish philosopher Ortega y Gasset thus, 'Man has no nature; what he has is history.' Medieval philosopher (and Catholic saint) Thomas Aquinas said there is 'nothing in the intellect which was not previously in the senses'. This is the 'blank slate' thesis. It builds upon the idea of Oxford philosopher John Locke, who while never quite using the precise term, helped develop the idea. We are all only social learning and experience. We come into the world with no

inheritance – with a blank slate. Therefore our behaviour is learning, not legacy. In the 1970s, when some scholars began to suggest there may just be a genetic component in what we do, there was outrage. There were metaphorical lynchings and intellectual burnings at the stake.

Be under no misapprehension: the ideas I want to share with you have been considered subversive. But that can be a good thing. Subversion is justified – it is *necessary* – when it is countering superstition, bigotry, prejudice or just simple but damaging error.

Nowadays, while these ideas may not be universally accepted, they are less controversial, grounded in research examining an extraordinary variety of areas of human life. A study published in 2014 by Yale psychologists Annie Wertz and Karen Wynn indicated that six-month-old babies are born with an evolved learning mechanism for identifying which plants can be eaten. This ability was present 'prior to any formalized instruction, and mirrors the ancestrally recurrent problem humans faced with respect to identifying edible plant resources.'

In similar vein, just this morning on Radio 4 there was a piece about how the 'food fussiness' and 'neophobia' (rejection of unfamiliar food) of some children may be hereditary. Anyone who has tried to introduce some virtuous new foodstuff to a child will have been scarred on this particular battlefield. As one child I tried to persuade to eat alfalfa sprouts put it, 'What is the difference between this and grass?' Radio 4's *Today* programme showcased an extensive study of 1,921 families with twins, aged 16 months at the time of the research. The study examined to what extent food

fussiness and neophobia were contributed to by genetic or environmental influences – nature or nurture.

Comparisons between twins are particularly useful in unpacking the contribution of genes and environment. Identical twins share the same genes. If reared apart in different environments, do they nevertheless share some common behavioural patterns? Do they independently have a serious loathing of cauliflower? The findings demonstrated how the reluctance to be thrilled about eating certain foods may show 'considerable heritability'. Yet hope was offered to dispirited parents: it is possible with a supportive, nurturing environment to 'overcome' these inbuilt disinclinations. Nurture can help smooth some of the rougher edges of nature. The authors gamely suggest 'repeated exposure to the problem food'. Good luck with that.

So: genetic inheritance *and* social learning contribute to our behaviour. There. Was that so terrible?

As the late Stephen Jay Gould said, 'There is inheritance, of course there is ... but heritable doesn't mean you can't change it. I have an inheritable defect of vision so I go to the drugstore and I get this ...' He puts on some glasses. So inheritance isn't always or necessarily the final word.

But let's not get ahead of ourselves. For I am going to take the argument one step further. Using Theory #1A (supersized version), I'll further suggest that the genetic component of human behaviour is informed and influenced by various evolved specialised computational modules of the mind.

Let us note in passing (we'll return to it) that there remains an important – and unresolved – debate about which of these modules are prime evolutionary adaptations and which are second-order side effects. There is the acrimonious debate

1 million people died. Singer's point is that although distant people are *morally equivalent* to those we know and love, we don't act as though they are. In other words, our instincts steer us towards giving money to the local charity rather than the Romanian one.

Singer poses this dilemma via his thought experiment of a young girl drowning in a lake. You can rescue her. It will ruin your shoes, your suit. It will cost you a few hundred dollars. But you will have saved a child – a child in front of your eyes. Practically everyone would do it. For the same money (in fact almost certainly less) you could save a child in the Global South, one of the many millions dying each year from preventable diseases like malaria, measles and diarrhoea. But we don't. Or don't very much. Why? And what has this to do with the Perceiver of Pain and the make-up of our brain?

In the rest of Part I, we will examine a number of ideas that offer us insight into our dilemma on the edge of the lake. They are the three principles of pain.

The first is the Principle of Emotional Blindsight – how we can see even when we don't. It is a strange phenomenon, one against all our intuitions, a mechanism constructed by evolution that enables us to see other people's pain, even when we can see nothing else.

Next is the Rule of Effective Invisibility – how we can make the visible invisible. We will examine how after severe damage to the brain, some stroke patients develop an extraordinary indifference to one half of the world even though their eyes see it. We explore how this may offer a clue to how we respond to the pain and suffering of other people, acting as if for all intents and purposes they don't exist.

Finally we'll examine the Cognitive Cost of Compassion, scrutinising a much-misunderstood concept. We'll examine the risks and rewards of opening ourselves up to other people, of being compassionate.

Together these precepts will equip us with ways to dissect our dilemma about the drowning boy with the bike: both what might be going on in our mind and our reaction to another scenario I want to introduce you to. For I will take you to a place I recently visited, which has one of the biggest lakes in the world – Lake Volta. And I will introduce you to children I met, who each day face the real risk of drowning. Two boys, Anthony and Michael, will provide us with a way into understanding this mental module, this Type, that inhabits our mind: the Perceiver of Pain.

The volunteer – let us call him Patient A – was alert and focused as the experiment began. He was a doctor, somewhere near the peak of his powers, and right-handed. But being alert is not the same as being able to see. Less than six months before the experiment, then aged 52, he had suffered a stroke. Within 36 days, another seizure silently tore through his brain. The effect was disastrous.

The first stroke destroyed the principal visual areas on the left of the brain; the second did the same on the right, devastating the right occipital lobe and wiping out his remaining visual field. Consequently, regrettably, inevitably, he was blind.

The stroke damage to his visual cortex was so severe that he was unable to detect colours, or movement, or a low spotlight beam shone directly into his eyes. If you showed him pictures of shapes – triangles or a bunch of circles, even

200 of them – no matter how big or small, he had no way of distinguishing between them. For all intents and purposes, as Milton wrote about his own blindness, his 'light was spent'. Regrettably, inevitably, given the severity of the strokes. But his complete cortical blindness was not the end of the story. There was something else, something that puzzled his doctor Alan Pegna.

Pegna is a gloriously affable man with the soft, comforting contours of his face matching his soothing voice. He has boundless enthusiasm – precisely the kind of person you'd want as your clinician. When he speaks his ideas and interests pour out, drawing you in, uplifting the listener. And that is what is so unusual about what happened with Patient A, because on the day it happened Pegna was being uncharacteristically quiet. Pegna thinks deeply about the brain and has cutting-edge ideas about what it is – about what we are.

'As a teenager, I dreamed of asking questions that no one at the time was much asking. I became interested in the intersection of biology and philosophy, how the brain can determine how we see the world and what it means to us. It remains astonishing to me.'

And it still astonishes Pegna that one day, out of the blue, the physical evidence pointing to one of the most profound discoveries in his research career was there, right in front of his eyes.

'That day I walked into the consulting room to see this patient as normal. Nothing unusual, but I was thinking – about something – and instead of saying hello I smiled and nodded. And that was what was amazing. My patient nodded

and smiled back. He nodded as I'd nodded, he returned my smile a fraction of a second after my smile, and yet he was blind. I said to him, "Why did you do that? How *could* you do that?" He said he didn't know what I was talking about. I said that he returned my smile and he must be improving, because he must have seen me. He said that he had no idea what I was talking about. He said, "I'm in total darkness." And yet, I was thinking, how could he do that? How could he return my smile? How could he "see"?'

There is a long and remarkable history of scientific serendipity – the happy occurrence of events. In 1928 Alexander Fleming was cultivating the bacterium *Staphylococcus aureus* as part of his study of influenza. He left for his holiday in August, but when he returned to St Mary's Hospital, Paddington in September, he noticed the growth of an unwanted mould in his Petri dishes. 'That's *funny*,' he immortally said. For bizarrely enough, the bacteria around the mould had died. The uninvited fungal intruder had killed them. He had discovered penicillin.

In 1964 Robert Wilson and Arno Penzias were using a type of radio telescope to scan the skies from Holmdel, New Jersey, when there was an annoying background buzzing, an incessant interference they just couldn't get rid of whatever they did. But the buzzing wasn't a system fault – it was the system itself. The buzzing was the cosmic microwave background, thermal radiation blown across time and space by the birth of the universe. The buzzing was the remnants of the Big Bang.

Just after the millennium, Dr Alan Pegna was checking on one of his clinical patients who was cortically – thus for all intents and purposes *totally* – blind, when something

serendipitous happened, when he had his own 'That's *funny*' moment. Pegna slowly realised that his patient could somehow 'see' the smile on his face.

Being a researcher as well as a clinician, Pegna immediately resolved to test the curious phenomenon. For the circles of serendipity worked in another way also: a complex chain of coincidental events that led to Patient A being in the examining room in Geneva of a doctor who was also a neurological research frontiersman.

When Pegna began his research into the links between anatomy and emotion, he was told by supervisors that emotions can't be measured, are too subjective – it wasn't really science. But Pegna didn't give up. Time (and technology) has proved his hunch right.

Patient A hails from the Republic of Burundi, in the Great Lakes region of Central Africa. He was a physician working for the World Health Organisation in Chad. It was in Chad that he suffered a severe stroke. Because he happened to be working for the UN's coordinating health authority at that moment, he was flown to Geneva for treatment.

But the nature of the remarkable condition Patient A possesses would not have come to light if he had not suffered a second stroke. Coincidentally, it was in virtually the same brain region as the first, but on exactly the opposite side. I say coincidentally advisedly, since this degree of symmetry in damage is really rather rare. Nevertheless the bilateral damage resulted in total cortical blindness. But at the same time there was – *serendipitously* – a vital part of his brain that remained intact and fully functioning. And that was to change everything.

Pegna initially presented his patient with faces in two conditions: angry and happy. Each face was presented for 2,000 milliseconds with a rest interval of 2,000 milliseconds before the next image. Although the patient was blind, he was asked to keep his eyes open. Although he could not see, he was asked to stare directly ahead. Once more he was asked to guess. Was the face angry or happy? He was not timed, but he was instructed to give his answer as swiftly as possible. It was then that something remarkable happened.

His score leapt. For identifying happy versus fearful faces, he scored 58 per cent. For happy versus angry faces, he scored 59 per cent. And for happy versus sad, he scored 61.5 per cent. Suddenly this was statistically significant. Something was happening.

Alan Pegna and his colleagues Asaid Khateb, François Lazeyras and Mohamed Seghier needed to perform a control experiment to cross-check these startling results. They showed the physician another series of faces, either male or female, but neutral, displaying no emotion, and asked him to state the gender. His score plummeted back down to 44.5 per cent, back to where he was for the circles and squares. So was he, for all his visual impairment, somehow able to respond to images depicting emotion? They needed to control for that.

To do so, Pegna chose animal faces from the IAPS database. 'We looked for all the threatening animals we could find there,' he tells me. 'There was a dog snarling and baring its teeth, a mean-looking German shepherd, possibly a bear. We also chose some less menacing animals. I think there were four bunny rabbits.' These were shown to the patient. The bear and the bunny rabbits. How did he now do?

No more than mere chance level. He could not distinguish between different animal emotions. So what had been happening? Although he was blind, the physician was able to detect not any kind of emotion, but *human* emotion on *human* faces.

The next step was to identify the neural mechanism that had permitted what appears to be a conjuring trick to happen. But the computer analysis would take time. Hoping but unsure whether the analysis would turn up something, anything, Pegna was transferred from Switzerland to his next academic post. It was in Wales. And there in Wales he waited.

To identify which brain structures were activated, Pegna had used fMRI (functional magnetic resonance imaging). The brain scan comes up as a kind of X-ray and is then minutely examined for any telltale blips. The scan is scoured in search of voxels.

A voxel is a cross between a pixel and volume. It is a computer representation of a three-dimensional structure. With the fMRI results, it would appear as coloured flashes denoting the brain structures activated in response to the various stimuli. As Pegna recalls, 'I'd moved to Bangor University, so it was my research assistant who first looked at the results. I was eagerly waiting and he eventually got in touch and told me that there was nothing much there. I thought, oh, well. It was worth a try, but to tell the truth I was a little disappointed. Then later I had time to look at the scans myself. Then I was really ... jubilant. So *jubilant*. There was really something happening there.'

What actually appeared on the axial scan, that is, a horizontal slice image of the patient's brain, was a small but

unmistakable cluster of orangey-yellow illumination. Pegna was right: something *was* happening – Patient A, despite being blind, was using another neural pathway to 'see' emotion.

'Initially I was worried it was a false finding,' Pegna says. 'But the more I examined it, the more it became clear that it was a solid scientific finding. It was my number one hope.'

Anthony was ambushed. In a crushing moment, all his hopes were dashed.

Anthony found himself in a cluttered back storeroom. There were no football shirts. He'd get no fowl, no Coke. Instead two men stared hard at him. One with a stick – sun-bleached, the colour of bone – the other with a chain. Not a chain that could be used to bind people. A bicycle chain, not oiled, wrapped around the man's fist, with a long end dangling down like a menacing tail. They each grabbed one of the boy's arms. Anthony was suspended, a few inches off the floor, his feet scrabbling in the air.

'The first one, Stick, he says, "Your father, he's sending you for education." Then the second says, "You must work to pay for education." I didn't understand. Why had my father not told me this? They said, "Your father says you fight with other boys." [This, Anthony told me, was true. He loved boxing.] They said, "You fight with us and we will hurt you." I said to them, "Why did my father not tell me?" And Stick, he says, "Your father orders this." And Chain, he says, "This is his wish. We must take you away for education." And I said my mother would never agree. And Chain says, "Who?"'

And as children everywhere in the world do, and always have done, Anthony cried out for his mother as they dragged

him out of the store. But she was in distant Benin. He gave this detail at our second meeting. He was too embarrassed to mention crying out for his mother when we first met. 'I kicked him and then he hits me with the chain. *Schhhukkkk*. It cuts my leg and it opens ...' He points to his trousers. Like a zip.

They threw him into the back of a van parked behind the store. They shut the doors. He couldn't believe his father would have done this. He struggled with the back door to get out. Inside the small box-like rear, like the back of a dog van, the air was rancid with stale cigarette smoke. 'There were old cigarettes and birdcages and I thought: Do they catch birds as well as children?' Then Anthony's heart sank.

As the engine coughed to life and tyres rolled over the rutted road, he saw him. Out on the roadside leading away from the shop. He stood with his hands in his pockets beneath the fronds of a palm – his father. Anthony stopped struggling with the door handle. He knew it was true. Chain was right. This is what his father wanted.

They drove and drove and drove. He kept thinking of his mother and Benin, whether he would see it again – see her. He'd once heard of the high hills in the north of the country where, his mother said, spirits of ancestors roamed. He'd always wanted to go there: he was scared, but curious, more curious than scared. How could it be true? His father said no: there was no magic, only men.

In the van, the heat was incessant. The strangers said nothing to him. Where they were taking him, he didn't know. Why, they wouldn't tell him, except that he would work for his education. Sometimes there were huge trees with climbers spiralling up them towards the sky; sometimes none.

Through the back windows he saw the world disappearing in the clouds of dust the vehicle threw up, as if he were being carried away on a storm.

'Then we stopped,' he said. 'There were lots of trucks. They handed me to two other men. The two men spoke in a language I didn't know. They kept saying this word to me. Again and again.' The word was a threat and a curse. It was slave.

The neural signal that Alan Pegna found beamed out from a particular part of Patient A's brain – the amygdala.

The amygdala – the name deriving from the Greek for almond–is a brain structure located deep in the temporal lobe. However, the characteristic almond shape that captivated 19th-century anatomists actually only accounts for one part of its complex structure. Subsequently our understanding of its extent – and importance – has expanded. To locate it in your head, imagine drawing a line through the ear and another going through your eye. At the junction – there. The amygdala, or more precisely amygdalae, for you have one on each side, are slightly bigger in males than females, certainly for adult humans – and adult rats.

They are known to be associated with memory and emotion. By the middle of the last century, it was observed that damage to the amygdala is associated with alterations in emotional behaviour, particularly fear reactivity, phobias and panic.

For the 52-year-old physician, the brain damage from the stroke had taken place within five months of the experiment, and so there was very little time for the brain's networks to reorganise themselves. What Alan Pegna and his colleagues

– it is likely to have been around 80 Ghanaian cedis, that is, around USD 20 or £16.

It is likely that the men his father contacted were so-called 'labour agents'. His father would have taken the money and then what happened to his son would be up to them. Anthony's father may not even have known what was going to happen to his son: where precisely he was going; what exactly his future enslavement would involve. Or perhaps he knew all too well and didn't care.

I listen to Anthony and what happens slowly comes to life, unfolding in front of me like those reels of film of test dummies in cars being slowly smashed against a wall. I want to stop what is going to happen, but at the same time realise that it has already taken place. And that is, I think, the structure of tragedy.

On an early winter afternoon, with a weak low sun being slowly snuffed out by drizzle, I went to a drop-in travel clinic in west London. Christmas decorations were just appearing along the length of High Street Kensington. The windows were all misted up like something out of a Dickens novel. When I told the practice nurse I wished to visit up-country Ghana and wanted to know which vaccinations were needed, she smiled and simply said, 'Everything.' It was only just an exaggeration.

I'd quickly checked the requirements on Google while travelling to High Street Ken on the Tube. It said I'd have to have typhoid and it could be uncomfortable.

'Can I have it in my right arm?' I said. 'I'm left-handed.'

'Roll up both your sleeves,' she replied.

As well as typhoid, I was inoculated against diphtheria, polio, yellow fever (you need a valid medical certificate just to enter Ghana), tetanus, hepatitis A, as well as having to take malaria tablets and use weapons-grade insect repellent. I was also warned about dengue fever and tsetse flies carrying sleeping sickness which infests the central nervous system causing neurological damage and a confused wakefulness throughout the night.

The route Anthony took was one where drivers are exposed to crushing heat. It is worse for their cargo, the trafficked children. For them no injections, medication, tablets or sprays. In many ways Ghana is a transit route for child trafficking, with routes running through it to and from Benin and Togo, Niger, Mali, and Burkina Faso. But there are a couple of exceptions. There is one notable destination point for child trafficking within Ghana. That destination is Lake Volta.

To Western sensibilities, these appear as remote, almost mythical lands. Few of us know much about Mali, Niger, Burkina, Benin. About the countries – about the mass of humanity teeming in them. In 1759 Scottish political economist Adam Smith postulated in his *Theory of Moral Sentiments* the case of a catastrophic earthquake in China. Smith argued that for all the myriads of sentient human beings suddenly swallowed up, a humane and thoroughly decent person in Europe 'would pursue his business or his pleasure, take his repose or his diversion, with the same ease and tranquillity, as if no such accident had happened.'

So Burkina, Benin, Lake Volta. What do we care? Why should we? Perhaps we don't – can't – never really will. Perhaps.

‘It drives me crackers,’ Peggy says.

Peggy Palmer is an elderly English woman, with impeccably cut snowy white hair. It’s styled into a neat bob with a perfect parting on the left. Reading glasses dangle from her neck on a long chain. She is someone who could comfortably walk onto the set of an Agatha Christie Miss Marple mystery deep in the middle of Middle England. What drives Peggy to distraction, however, is best illustrated when she tries to describe the world around her. When she draws daisies.

Pretty much anyone can draw daisies. When children first draw flowers, they’re basically daisies. There is something winning and perennially appealing about the simplicity of the common, lawn or English daisy (*Bellis perennis*: Latin for everlasting prettiness). The symmetrical fan of white petals, the yellowy sun-like blob in the middle. The name itself is a corruption of ‘day’s eye’, reflecting the fact that the petals fold into a tight ball at night and then open to eye the world in the morning. Except that after she suffered a serious stroke, Peggy’s daisies are forever different to those you and I know. Only half of the petals will open – those on the right-hand side.

To understand her condition, imagine a clock face with a second hand sweeping smoothly from 12 to 2 to 4 then on to 5 and 6 – and then, not even stopping, but *vanishing*, disconcertingly disappearing, the left half of the clock face a blank. Peggy, and stroke patients like her, suffer from something like the opposite of blindsight, those who see without seeing. Sufferers of her condition, hemispatial (or visual) neglect, don’t see – even though they do. Half the world is effectively invisible to them.

Alan Burgess, for example, was a draughtsman, and then a driver, when at the age of 59 he suffered a stroke that damaged the right parietal lobe of his brain. The majority of people suffering from visual neglect suffer this right-sided brain damage. The resulting effect is usually 'contralesional': the damage affects the opposite side. And thus, like Peggy and many others, when Alan Burgess is asked what lies on the other side of the midpoint from his nose to his navel, the answer is short and shocking: 'Nothing,' he says. The left-hand side of the world has vanished.

It is not a problem with his eyes. His retinas are fit and functioning, receiving visual information, passing it on. That's not the problem. It's what then happens to it. For a critical part of his brain ignores what the eyes are telling it. This damage to the parietal lobe, the part of the brain that helps us construct space around us, results in a complete indifference to one part of the world. As if it no longer counted. As if it were no longer there.

Patients suffering from visual neglect might eat only the right half of their pizza, but always the same half – as if the other identical slices topped with melting cheese simply do not exist. They might shave only one side of their chin; apply lipstick to only one half of their mouth – always the same half. Their lives narrow into a long half-moon corridor with exit doors only on the right. Consequently for them, and for all intents and purposes, one huge part of the world, which they see and yet fail to see, has simply ceased to be.

Theirs is a physical processing problem. But when we ignore the suffering of others that we intellectually *know* must be going on, when we act as though it does not exist, is

it also somehow being processed out? If so, how and why? What are the mechanisms in our mind that do this?

Anthony had no idea how long the journey would last, or when it would end – if it would end. Then suddenly it did. The two new men flung open the truck doors, and gestured that he should get out. One of them, he's never forgotten this, 'He bows to me, like he is my servant.' They delivered Anthony outside someone's compound, a simple collection of huts and shacks. It was over – the journey was over. The worst experience of his life. He glanced around, squinting in the sudden sunlight. Finally he was able to stretch out his legs, start to get over his travel sickness, breathe fresh air. Before long he would have given anything to be back in the truck.

In this new place there was water. He did not know what it was. 'I wondered if it was the sea,' Anthony said. 'There was

SEVEN

The Cognitive Cost of Compassion

THE FEMALE PARTNER in each of the volunteer couples was eased into the huge doughnut-shaped contraption like a roast into the oven. Once that was done, the experiment could begin.

The assumption made by the researchers in the Department of Imaging Neuroscience at London's University College was not an outlandish one. As a hypothesis upon which to base an experiment, it was entirely reasonable. It was that each individual in the pairs of experimental volunteers was likely to feel sympathy for the person sitting next to them. Not unreasonable as they were all suffering from a painfully common, much discussed, little comprehended, human condition. What Ambrose Bierce in his *Devil's Dictionary* calls that temporary loss of sanity curable by marriage – love.

The research team had found 16 pairs of volunteers. The female partner was carefully inserted into an MRI scanner – an enormous, bulky, jaw-droppingly expensive machine (they can cost over £1 million). The scanner oozes out a magnetic field and then projects pulse after pulse of radio waves into the inner recesses of your body. In this case, into each woman's brain.

For within the brain are anatomical structures, and within them atoms, and within them, lying at their heart, protons. While the MRI's magnetic field lines up the protons in the

head like a row of compass needles (MRI stands for magnetic resonance imaging), the radio waves knock them out of position. Then the radio wave is suddenly cut off. Free of the disturbance, the protons shoot back, emitting a telltale signal. And it's this that appears on the scanner and can be read. And through all this, sitting next to her, quietly, adoringly, no doubt a little anxiously, is the woman's partner. And the anxiety for both is deepened since on the back of each of their right hands are strategically placed electrodes. These slivers of metal are there to administer another kind of signal: a pulse of pain.

Sometimes there would be none. Otherwise the pain would be 'high'. Sometimes to him; sometimes to her. This would be communicated on a large screen. When the woman is shocked, the pain matrix in her brain is activated. It flashes on the scanner. The brain regions activated include the anterior insula and the anterior medial cingulate cortex. That is what the UCL researchers expected – textbook stuff. But when the woman's partner is shocked, something remarkable happens.

Before the experiment, the lead investigator, Tania Singer (now Professor in the Department of Social Neuroscience at the prestigious Max Planck Institute for Human Cognition and Brain Sciences in Leipzig) said that some doubters suspected that her team's efforts would be wasted – that they'd find 'an empty brain'. When the data on the computer scanner was actually analysed, however, there was a small but unmistakable signal – a telltale message from the protons. What were the protons saying?

For child labourers at Lake Volta, the working day often begins at 3 or 4am. It can run through until 6 or 7pm. It all depends on the fish. But sometimes the fishermen will be out on the water until the next morning, trying to grab sleep on the undulating, leaking boat. Like fishermen through the ages, their lives are determined by the fish. Everyone follows the fish. For Anthony and Michael, the work was seven days a week. There was no rest day. The master pursued the fish with an unrelenting fury, as though it were his personal mission to empty the lake of every one of them. As Anthony said, 'The Master says, "When the fish don't swim, you don't swim." So we work every day.'

Children work on the lake for different reasons. Some work with their families who are local fishing folk. Others have been sent to join distant relatives. Most of these children get at least some education. Then there are those sent by parents via agents for money. They are the lowest of the low. That was Anthony. For them there is little or no education, just work.

But what was expected of a child labourer fishing on the lake? The boats are flat-bottomed and many have no engines. They need paddling. One sees small boys with grotesquely developed muscles from propelling the boat through the silty water day after day. Children are involved in casting the nets, hauling them in, even when they are laden with fish. And then once out of the water, the catch needs to be unpicked from the nets. And during all this, they are outdoors without protection, exposed to sun and wind with little food or water. But the worst thing of all, the thing they dread, is the diving. I'll come to the diving.

'Michael helped me with everything,' Anthony said. 'He was from [a town in Ghana]. His mother sold him for five years. He didn't know how much for. He'd been there four years when I came. He was a good swimmer. He taught me to swim better. But I never liked it. I was frightened of the water.'

'How were you able to work on the lake when you were frightened of it?' I asked.

'I always think of Benin,' Anthony said. 'And Michael looked after me. He explained to me about the fishing. He explained to me about Korku. We were standing next to the lake, in the shadow of a tree. He said be careful about Korku.'

Sometimes the son of the slave owner was friendly to them. But it never lasted. Then he would pick a fight, usually over nothing.

'I hate him,' Anthony said.

'Think how hard it is for him,' Michael replied. 'Now there are two more boys in his family.'

'We are not family.'

'We live with them,' Michael insisted. 'But if you fight him, the Master will beat you. You must never fight him. If you do, the Master will beat you. Do you understand?'

'I said I understood but wasn't scared,' Anthony told me. 'I love to box. Michael grabbed my arm. He pushed me against the tree. He turned and showed me the marks on his back. Where he had been beaten. "Do you *understand*?" he said. I said I did.'

Since Lake Volta was created by the flooding of an area of trees and villages, there are many hazards just below the surface. There are forests beneath the water, waiting. Forests of tropical hardwood: ebony, mahogany. They snag the nets.

When this happens, it is the job of one of the children to dive under the boat and free the fishing tackle, disappearing into the depths to untangle the knots, lungs bursting, trying to hang onto life-saving breath. But the forests do not just snag the netting. Sometimes they catch children.

All the boys working the boats know it. But in the way that one child will torment another, it was Korku who told Anthony. A couple of months after Anthony arrived, Korku crept into the flimsy compound shack that Anthony shared with Michael.

'One night, Michael is asleep and I am lying thinking, thinking of my sisters, and Korku comes. He whispers in my ear. He says "When you dive under the boat, you see them." He made his hand dive under and his eyes all big. I said nothing, because he wanted me to be scared, so I just say nothing. So he says, "You see them, the dead boys." I said nothing but I was scared. I began to have dreams about dead boys swimming in the trees.

'When we wake early the next morning, I ask Michael if he's scared of the dead boys. "Why?" he says. I said because they're dead. He said, "We are lucky. We are alive. They are dead. I'm sad for them. Not scared."'

Michael was always prepared to dive off, dive under, swim through the dark water, working in the silty darkness. But it was extremely dangerous work, with the constant risk of getting trapped in the nets and drowning. So I asked – I was bound to ask: 'Why did Michael always do it, the diving?' Anthony shrugged. I continued, 'It's the most dangerous thing, isn't it? But he kept doing it. Do you know why?' Anthony shook his head. His bobbing and moving stopped, and he was uncharacteristically still.

atoms, the causes of the fall of the Roman Empire, and (occasionally, imperfectly) why the love of one's life is annoyed with you. Three pounds of flesh that thinks. And yet thinking does not come free. It costs. It costs in calories. Although our brain accounts, typically, for 2 to 3 per cent of our body mass, it uses up about 20 per cent of our calorific intake. It is very high maintenance matter.

The Volta region is full of ghosts and spirits – so it is said. It is an area where folk tales and belief in the supernatural abound, and so Korku's ominous tales of dead boys resonate with deeply engrained tradition. Around Volta, for example, the practice of *trokosi* is found. In the Ewe language, the word means 'slave to the gods'. In this traditional practice young girls are sent to live at shrines to appease the gods for wrongs other members of their family have committed. Such beliefs form part of the fabric of rural life in this area. It is a situation ripe for exploitation by slave masters. They imbue their young charges with the belief that should they try to escape their servitude, the spirits will catch them in the bush around the lake and drag them under the water.

Captured escapees are severely punished. 'When he was 11,' Anthony said, 'Michael tried to escape. They caught him in a village down the lake. He was so hungry, he tried to steal some food. They tied him up and the Master came. They held his hand on a wooden stump. The Master cut his finger with a knife. Not all of it. A mark so he remembers.'

Then the slave master cut Michael again in a different way. He told him, 'Your mother doesn't want you.'

The Master used an additional form of deterrence on Anthony, another kind of psychology. 'He said, "If you try to

escape, I will beat Michael with a paddle. I will beat him till he dies.'"

I asked if Michael knew what the Master said. Anthony said Michael did. I asked if the boys ever spoke about it.

'When we were in the hut, Michael once showed me his finger. He said, "If you escape, promise me you'll do it better than this. Promise me you'll get free."'

'But then they'll beat you,' Anthony said.

Michael shrugged. 'Then you'll be free,' he replied.

Dr Kate Danvers qualified in clinical psychology at Oxford, before spending the first years of her career in the NHS. I met her in Winneba, along Ghana's coastline. Danvers was on a two-year placement with the NGO Challenging Heights. It rescues and rehabilitates children enslaved at the lake.

'We have found children punished in all kinds of ways,' she says. 'Hit on head with paddle so hard that they pass out. Hands held in the fire till they burn. Pepper put in open wounds.'

'Children?' I say.

'There is a level of severe sadism inflicted which is designed to control them, keep them enslaved, deter them from even trying to escape.' She pauses. 'It's harsh.'

'Diving wasn't only to free the nets,' Anthony told me. I didn't understand. What else could it be for? 'Sometimes we dive to find the fish.' I was silent, confused. 'You understand?' he continued. It was such an unexpected notion that all I could respond with was the utterly inadequate, 'Really?' (*Vraiment*?)

'But Michael used to do this,' he said.

'You didn't?'

'Sometimes. But almost every time Michael did.'

‘There were trees under the water?’

‘And snakes.’

‘It was dangerous, but Michael dived?’

‘Yes,’ he said.

The dangers reminded me of a conversation I had with one of the members of the rescue teams that liberate children from the lake. When asked why fishermen use children, he said that adults expect payment, children don’t; adults want a share of the catch, children don’t; adults refuse to dive, children won’t. So why do slave masters use children? Because they can. From that time, I’ve kept thinking of Michael, this boy diving into the murky water, looking at the fish, as the fish looked at him.

So life on the lake continued into Anthony’s second year. I asked why Michael had not been released then as his five years’ bonded labour was up. ‘The slave master took him for another five years,’ Anthony said. ‘He paid his mother more money. He said that he’d get a boat for Michael at the end. But Michael didn’t believe it.’

Michael told Anthony he knew the truth: his mother didn’t want him; no one did. He would live at the lake. He would die at the lake and there was nothing else.

It is not uncommon for parents who have sold their children to resell them. At home, the economic pressures are unlikely to have improved – in fact, there’s every chance they’ve got worse. There may be new mouths to feed, so the prospect of another lump sum of cash for the child they had not seen for half a decade can be too much to resist. The best I can gauge it, this is what happened to Michael. And so he stayed at the lake. And life continued for the two boys for another year: Anthony now 13, Michael 14. They endured a

relentless cycle of work without weekend break or holiday, little food, beatings, lightning storms on the lake, risk of disease and serious injury, attack from water snakes, and the greatest risk of all, what their thoughts on the boats kept coming back to – diving.

Despite appearances, despite what some believe about the mass of empty-headed people around them, we all do an awful lot of thinking. The thing about human thinking is that it is thinking of a very particular kind. It uses up a disproportionate amount of energy. It is, to use the phrase of Oxford's Robin Dunbar and his colleagues, 'very expensive in computational terms'. Dunbar's team won the British Academy's research competition to explore 'what it means to be human'. They investigated what we are doing that is differently cognitively from other primates. They plotted and charted the brain sizes and social groups of our near neighbours and more distant evolutionary relations. And they zeroed in on one of the factors that distinguishes us from virtually every other living being creation has known: our unfeasibly high 'neocortex ratio'.

The neocortex is the 'newer' part of the brain. (From 'neo': new; 'cortex': shell or husk, from the Latin for tree bark.) It consists of the frontal and temporal regions, areas vital for something humans constantly do: mind reading. Getting into someone else's head. It is this deft trick, to begin to divine the thoughts and motivations of others, that is strongly correlated with the size of the social groups we live in. More neocortical power, more complex social groups – and there are none more complex than those of *Homo sapiens*. To simplify, the higher the neocortical ratio – the greater the

preponderance of newer, more sophisticated brain regions over old – the more intelligent the animal. But Dunbar's team found that all this comes at a cost, a high one computationally.

The reason is that while living in a social group of the same size (say, an extended family of six), the neurons in the human brains will be working harder than those of a similarly sized group of macaque monkeys. The neurons in the neocortex of humans will be in overdrive gauging all the permutations and problems of family life – or imagining them. And that is effortful. It uses energy. It is tiring and trying. Welcome to the human family. Now imagine extending that to others around us. To those we are not related to. To those we are not even closely connected to socially. As the ripple of concentric circles radiates out, as more and more people come within what Dunbar calls our 'circles of intimacy', we are using more and more of our cognitive resources. We are not, as the Prince of Denmark speculated, infinite in faculty. Rather more circumspectly, Dunbar claims that we reach a limit – we run into buffers of the brain.

We just cannot meaningfully extend the process beyond a certain point. Because for all our thousands of Facebook friends or Twitter followers, the effective limit of our social circle is 150 – what has come to be known as Dunbar's Number (he is unaware of the precise origins of the term, but is quite content to adopt it). What can we deduce from all this? Thinking of others comes at a price. It has a cognitive cost. And that affects how we view and treat other people.

Once we start worrying, caring, or just plain thinking of other people outside our family and familiar circles, we begin

As he was lying there, Anthony couldn't help thinking about the fish. Sometimes they'd pass like smoke through the water. Then Michael would suddenly surface, water streaming out of his nose and mouth. 'I've found them. I've found them,' he would beam. These were the good times.

It was a very strange day with winds and rain and terrible lightning. The first he knew that something had happened came from the Mistress. She ran to their neighbours; she shouted, panicked.

Anthony rushed outside. He grabbed people, asked what had happened. Everyone ran down to the water. He still felt queasy, but did the same. On the shore, the men used ropes to pull up the Master's boat. The villagers clustered around it.

'The Master's clothes were all wet,' Anthony said. 'Then I knew something was wrong. The Master didn't like going in the water.'

Once on the strand, the boat tipped over on one side like a great beast slowly toppling. And there in the bowels of the skiff, splayed out and motionless, was Michael. No one said anything to Anthony. No one needed to.

The children of the lake are vulnerable to a long list of serious injuries. Some have physical deformities, their backs misshapen due to the excessive crouching and paddling from a young age (sometimes as young as four) while the skeleton is still being formed. Others cannot spread open their hands fully because their fingers are habituated to clutching the paddle. So their hands are constantly in a claw-like shape. Rehabilitation staff use 'pomade' to try and manipulate the tendons slowly back.

Children brought back from the lake are often found with the three big diseases: typhoid, malaria and of course bilharzia. And then there is the invisible damage. The behavioural disorders from the deeply scarring trauma. Not only from their own maltreatment, but from having witnessed the serious injury and death of others. Of their friends.

A few days after Michael died – Anthony cannot say how many – Korku came back to the hut.

'Korku is so happy. He cannot keep still. He says, "Let's see. Let's see if you see your friend down there now."'

Anthony hurled himself at the bigger boy. This was what Korku had been waiting for. Michael had warned him that Korku wanted to fight the boys so his father would beat them. 'Michael said to me, "Promise me you'll never fight him." I promised.'

But now Anthony fell willingly into his trap. 'I didn't care. I didn't care what happened.'

Anthony set about Korku. He landed two blows – 'Hard, very hard' – on his face. The second made Korku's nose bleed. At first Korku was shocked: the jolt of pain; the dripping of blood. Then he must have realised that the blood running down his face was the best evidence. Korku had prepared well. He had concealed a paddle behind the nets. Now armed with this weapon he mounted a severe counter-attack, smashing the thick slab of wood over the head of the smaller boy. With the fourth or fifth blow, Anthony's knees gave way. As he crumpled to the ground, he became aware of others arriving in the hut. 'I could hear the Mistress scream. I could not see her. The Master took the paddle. He took it.' The slave

master set about ending what his son had started. As Anthony began slipping out of consciousness, as his eyes 'filled with water' as he put it, he saw feet, fishing nets, then nothing.

When the heat of the sun finally roused him – he didn't know how long after – he found himself lying in the compound outside the hut, motionless. From time to time Korku's friends would come by. At first they were excited and stared at him. But they didn't know what they were supposed to make of the devastation inflicted on Anthony and moved on. Blood from the gashes in his head was now caked hard by the remorseless sun. He didn't have the strength to move. But the pain that paralysed his body taught him the decisive lesson of his life: if he stayed in that place he would die. They would kill him. Perhaps slowly, perhaps quickly and painfully; perhaps at their hands, perhaps by the lake, but he would die. There in the yard, prostrate, he learned the law of the lake: that enslaved children were nothing. There would be no education that many of their parents had been promised. There would be no end to the slavery, except just possibly one distant day to become a slave master and buy children to paddle *his* boat and dive to untangle *his* nets. He would never do it.

'So I made a promise. I promised I will escape. I didn't know how. If you try to get a ride in a boat, the boat owner will know your master. He takes you back. You're beaten or they cut your finger. So I didn't know how to do it, but I promised Michael that one day I will escape.'

A significant body of recent research has been exploring the connection between our ability to focus, to keep paying attention and different forms of motivation. To what extent

Epub ISBN: 9781473519374
Version 1.0

Published by William Heinemann 2017

1 3 5 7 9 10 8 6 4 2

First published by William Heinemann in 2017

William Heinemann
20 Vauxhall Bridge Road
London SW1V 2SA

www.penguin.co.uk