

Part 5

You are going to read a newspaper article about research into a chemical. For questions **31–36**, choose the answer (**A**, **B**, **C** or **D**) which you think fits best according to the text. Mark your answers on the separate answer sheet.

Oxytocin

Oliver Burkeman asks the US academic Paul Zak about his research into a chemical called oxytocin, which has an important role in our lives.

Paul Zak is renowned among his colleagues for two things he does disconcertingly soon after meeting people. The first is hugging: seeing me approach, he springs to his feet, and enfolds me in his arms. The second is talking them into having needles stuck into their arms to draw blood. I escape our encounter unpunctured, but plenty don't – willingly, of course. Zak's work has involved extracting blood from, amongst others, a couple on their wedding day, people who have been dancing, and a group in Papua New Guinea preparing to perform traditional rituals.

Having dipped into his book, *The Moral Molecule*, I know that what drives Zak's hunger for blood is his interest in oxytocin. Long known as a female reproductive hormone, oxytocin emerges from Zak's research as something much more. Being treated decently, he says, causes people's oxytocin levels to rise, prompting them to behave more decently, while experimental subjects given an artificial oxytocin boost behave more generously and trustingly. Describing the chemical as the 'moral molecule that keeps society together', Zak offers nothing less than a vast explanation of whole swathes of philosophical questions. The subtitle of the book, *the new science of what makes us good or evil*, gives a sense of this.

The aforementioned wedding took place at a house in England, where Zak set up the equipment needed to collect blood. He took samples, before and after the ceremony, from the bride and groom, and various guests, line 16 then transferred his spoils to his laboratory. There, he discovered the results he'd been expecting: the ceremony caused oxytocin to spike. And it did so 'in direct proportion to the likely intensity of emotional engagement in the event'.

The bride recorded the highest increase, followed by close family members, then less closely involved friends. Mapping the wedding's oxytocin levels gave rise, in Zak's words, to an amazing human 'solar system' with the bride as the sun, the hormone finely calibrated to the emotional warmth each guest felt.

Zak's interest in oxytocin was fuelled by experiments involving the Trust Game. Participant A is invited to lend some money to a stranger, Participant B. They're told that any money A sends will triple in value, whereupon B can return some as a thank-you. According to traditional models, the game should break down before it begins. B, acting selfishly, has no reason to give any money back – and, knowing this, A shouldn't send any in the first place. However, as in previous research with this tried and tested set up, the vast majority of A-people send money, while an even larger percentage of B-people return some. Zak's analysis of the oxytocin in participants' bloodstreams reveals that by sending money to B, person A is giving a sign of trust – and for person B, being on the receiving end causes oxytocin levels to increase, motivating more generous behaviour in return.

The possible implications are intriguing. Evolution has given us oxytocin, a biological mechanism that lets us be instinctively trusting and kind – or 'moral'. Mixing science and morality prompts suspicion, however. Just because something is 'natural' doesn't mean it's 'right', and efforts to derive moral codes from science rarely end well. Moreover, it's unclear what Zak means when he says oxytocin, or the lack of it, 'makes' us good or evil. Still, none of this undermines the pragmatic aspect of Zak's work. If oxytocin is the mechanism through which moral action takes place, then by manipulating oxytocin, we might boost levels of trust, generosity, and ultimately happiness.

On the other hand, what's to stop car dealers, say, pumping oxytocin into showrooms? Zak waves the matter away: it's incredibly hard to get enough oxytocin into the bloodstream. Sure, oxytocin can be stimulated in subtle ways to serve other people's agendas, 'but they're already doing that. Why do you think they have babies in adverts? To make you feel good, by provoking the release of oxytocin.' Meanwhile, he says, we should all do at least eight hugs a day, massage and even watch soppy movies – he's done the tests. Interaction on social media seems to lead to oxytocin spikes, undermining the argument that it's killing real human interaction; hormonally, it appears, the body processes it as real interaction.

31 What does the writer suggest about Paul Zak in the first paragraph?

- A He provokes mixed feelings in people.
- B He understands that aggression can sometimes be useful.
- C He can adapt himself to a variety of situations.
- D He is capable of being very persuasive.

32 What does 'spoils' refer to in line 16?

- A equipment
- B samples
- C guests
- D results

33 What is the writer's purpose in the fourth paragraph?

- A to make a counter-argument
- B to introduce a new concept
- C to summarise an idea
- D to expand on a point

34 What does the writer say about Zak's Trust Game experiments?

- A They demonstrate the importance of money in human relations.
- B Their artificiality means that what they tell us is of limited value.
- C The results challenge conventional notions of human behaviour.
- D They were constructed in a way that was clever and innovative.

35 What does the writer suggest in the sixth paragraph?

- A The potential exploitation of oxytocin should be given serious consideration.
- B Zak's experimental methods are the object of some mistrust.
- C Further work is needed to define exactly what oxytocin is.
- D Science cannot be free of ethical considerations.

36 How does Zak regard the idea of deliberately manipulating oxytocin?

- A He doubts whether it's ever going to be feasible.
- B He worries about possible commercial misuse.
- C He advocates wider use of readily available means.
- D He feels it's outside his area of expertise.

Part 6

You are going to read four extracts from online articles about childhood. For questions 37–40, choose from the extracts A–D. The extracts may be chosen more than once.

Mark your answers on the separate answer sheet.

The Changing Face of Childhood in the USA

A Mary Granger

Parents often complain that childhood today seems different to what it was when they were young – when a free day meant they ran care-free out the door after breakfast and played until twilight. But they are somewhat hypocritical, because many of today's better-off children seem to have less time for such unstructured play as they face an unfortunate mass of parent-organised 'things-to-keep-kids-busy' that might include karate lessons, tutoring or ballet. Parents are increasingly unwilling to let their offspring play outside. As a result children are more protected than ever before. A generation ago children went cycling on their own, went on public transport alone, took responsibility for themselves. Some experts suggest that the whole nature of parenting was different; that it was much less hands-on and more trusting of the child.

B Max Poenbaum

The interaction between the child and the natural environment provides an authentic learning experience based on sensory absorption and investigation, but it disappears with the passing of childhood. Then adult cognitive reasoning gradually takes over as the world is seen in a more objective or scientific way. At the transition between childhood and adulthood, young people can feel in danger of having nothing stable to hold on to, caught between the trapeze of childhood that has been let go of and the trapeze of growing up not yet within his or her grasp. Now parents must become a safety net at a time when the young person feels naturally anxious and insecure. But these days, parents are struggling against the slow creep of an increasingly commercial and sexualised culture and behaviour. That very culture, which is so rightly blamed for preventing younger children from being children also undermines the parenting of teenagers.

C John P. Ondorenko

It is clear that young children have a special affinity for the great outdoors that is connected to their development and their ways of knowing and learning. This is a unique and unrepeatable ability that starts to fade during the teenage years. Even so, today's teenagers are under pressure to grow up before they are ready. Celebrity culture, adult-style clothes and music videos are all guilty of encouraging them to act older than they are. As a result they are adrift in a sea of disaffection. In particular they care less about school performance and social obedience than ever before. On the flip side, they are much more tolerant and aware of ethical issues and also more caring regarding the future of the planet. A common adolescent complaint is of ever-increasing boredom, and yet children today have no reason to be bored, partly as the number of formal, extra-curricular activities available to them is unprecedented.

D Steven Zafaria

Once the pre-teen years are gone, parents have a more aloof adolescent who is more reluctant to be touched, who would rather spend time with friends, who feels too old to play with parents, who is embarrassed by their public company, who is more private and less forthcoming, and who seems to court their disapproval through deliberate resistance and opposition. The pattern is a standard one and always has been, as any psychologist will tell you. Teenagers may think they are fully independent, fiercely so in fact, but parents must be there for them, taking a back seat, intervening less than before, but ready to listen and guide when called upon. But parenting is becoming increasingly complex. The increasingly commercialised and sexualised world we live in means that children are missing out on a proper childhood. The solution is clearly not to keep children wholly innocent until they are adults, but we have surely reached the point where some regulatory protection is required.

Which expert

has a similar view to Poenbaum on how long people's instinctive relationship with nature lasts?

37

38

expresses a similar opinion to Zafaria on what the role of a parent should be regarding teenage children?

39

has a different view from the others on whether children are growing up too fast?

40

expresses a different opinion from Ondorenko on the value of planned activities for children?

Part 7

You are going to read an extract from a newspaper article about travelling in Poland. Six paragraphs have been removed from the extract. Choose from the paragraphs A–G the one which fits each gap (41–46). There is one extra paragraph which you do not need to use.

Mark your answers on the separate answer sheet.

Before Google ... the alternative travel guide to Poland

Vicky Baker takes social networking back to its roots by resurrecting a travel project in Poland from the early 1990s.

'I am going to take you to my friend's studio. It's quite unusual,' says Jarek, my unofficial guide to Kraków, in one of the biggest understatements of the trip. He leads me to an old cottage. It looks abandoned, but then we are greeted by a man who, with his grey beard and sheepskin waistcoat, looks like an ageing pop star. Outside there's a two-metre-high carved totem pole and the remains of a bonfire are still burning.

41

As a couch surfer I am used to finding golden opportunities through strangers, but the unusual thing about this connection is that it came about after I tried to reconstruct a tourism project that was, in many ways, the precursor to modern social networking. Back in the 1980s, US-born Jim Haynes, a renowned supporter of alternative arts, had an idea. Convinced that the best travel experiences come from the people you meet, he set himself a goal: he would match inquisitive travellers with gracious hosts by creating an alternative guidebook, in a country he loved. *Poland: People to People* finally hit the bookshelves in 1991.

42

Eventually enough people came forward with their contact details and a willingness to participate in the scheme. Jim assembled all the names in what read like a personal address book. The cover price of £6 bought you the contact details of 1,000 strangers.

43

Intrigued by the idea of taking modern networking back to its roots, I wondered whether, many years

later, Jim's hosts would still be willing to greet an unknown visitor from overseas. But first I would have to track them down.

44

At first I planned to communicate only by post and sent several letters before realising I lacked the patience. Feeling a little guilty, I opted for the 21st-century solution: searching for the names on the Internet. Many were dead ends; others simply never responded. But gradually people did come forward and I received various slightly stunned replies. Before long I had meetings arranged in Kraków and Gdansk.

45

I skip the organised tours, though, and head off to meet Wladek, a 50-year-old academic. We meet in a 19th-century café, where an ultra-polite waitress sets down a massive plate of Polish dumplings before us. It is too much for any tourist to eat.

46

I'm charmed by Kraków and reluctant to leave Wladek, who proves to be excellent company, and the café, but I already have my next meeting arranged a 10-hour train ride away. Gdansk, with its immaculately renovated buildings and little boutiques, is clearly a world away from the city it was in the 1990s. I have arranged to meet kite-surfing enthusiast Mariusz at a restaurant there. *Poland: People to People* lives on, it seems. I know Jim will be delighted.

A Peer to peer websites are common now, but turning the idea into a book back then was a challenge. Jim sent out hundreds of letters through his already extensive network of friends and placed small ads in various Polish publications.

B My new acquaintance has hazy memories of the people he met through the book, but says he enjoys the company of visitors, as they are curious and interested in others. He shows me old photos and speaks of how life has changed here.

C What follows is one of those surreal travel experiences, where one new friend introduces you to another and another. Before long we've set off on a tour of Kraków's artistic community.

D That was easier said than done. Details were sparse; just contact details and a very short profile. 'I live in Kraków and I am a man of Kraków,' read one rather unhelpful entry.

E Jim gave me an out-of-print edition at one of the open-house dinners he runs every Sunday at his Paris home. It was like opening a little time capsule and from that moment I knew what I had to do.

F The next morning is the occasion of my impromptu adventure with Jarek, an artist I found after contacting various local galleries. He invites me for dinner and even finds the original typewritten letter Jim sent in 1989 to introduce the project.

G It is my first time in Poland, and the former is undeniably impressive. The picture-perfect main square is lined with Renaissance buildings, lively street cafés and golf carts waiting to take tourists around town.

Part 8

You are going to read four book reviews. For questions **47–56**, choose from the sections **(A–D)**. The sections may be chosen more than once.

Mark your answers **on the separate answer sheet**.

Of which book are the following stated?

It presents complicated material in manageable chunks of data.

47

The book failed to sustain the reviewer's interest throughout.

48

Readers are left to draw their own conclusions about some of the book's material.

49

Its author sought expert advice on certain aspects of the book.

50

The book is both instructive and visually appealing.

51

It looks both backwards and forwards in time.

52

Its author effectively brings together different fields of study.

53

It offers a selective, rather than comprehensive, coverage of its topic.

54

It is possible to feel a sense of involvement with the subject matter.

55

The text is a skilful mixture of data and personal comment.

56

NATURE BOOKS

A WHY ELEPHANTS HAVE BIG EARS by Chris Lavers

Chris Lavers has set out to produce a book that sits neatly between serious scholarship (he is a senior lecturer in animal ecology) and the need to satisfy the inquisitive pesterings of children. Why are ants so small? Why can a bat fly and a shrew not? And of course, why do elephants have big ears? The answer is no shocker – creatures have interacted with their habitats to evolve into the extraordinary forms they possess today. But once this principle is established, the book loses some of its charm. The book's most successful sections are where we travel through the Jurassic and Cretaceous periods of prehistory to look at how nature made its primal decisions: which species would fly and which would swim, which creatures would be warm or cold-blooded? Lavers argues that it is here we find the true answers to our questions today and the principles to safely predict our future.

B ORIGINS: The Evolution of Continents, Oceans and Life by Ron Redfern

Shortlisted for the BP Natural World Book Prize, *Origins* comprises panoramas and a wide-ranging, accessible scientific insight to make this work a fresh interpretation of the Earth's fascinating evolution. The landscape photographs were shot specifically for the book, albeit by the author himself, after consultation with leading scientists to find the location of the best-known examples of various forms and processes. The writer manages to reduce the most complex theories to digestible nuggets of information. The text is an entertaining narrative that successfully weaves recent and ancient history with science. *Origins* is a heavyweight work in more ways than one: as a test for the legs of any coffee table and as a definitive guide to our planet's evolution. It is ideal for regular dipping into as much as for in-depth reference.

C EARTH ODYSSEY by Mark Hertsgaard

Worried about the effects of our expanding population on the world's resources, Mark Hertsgaard took a world tour to see for himself how bad things really were. *Earth Odyssey* is the culmination of seven years' work, during which time he visited 19 countries. To read it is to shadow him on his tour and to observe the condition of the planet through the eyes of the people he met along the way: their living conditions, their personal struggles and triumphs. He does not try to offer his own opinions; rather he lets us make our own minds up. Hertsgaard cleverly interweaves his observations with carefully gathered evidence as he seeks to answer questions about our environment. He takes us through the industrial and agricultural revolutions, then back to the origins of the human species, to see if the past can provide any answers. Although the answers we want to hear sit uneasily with the facts, Hertsgaard presents an elegant portrait of the human species, full of character, dignity, perseverance and strength. He leaves you with a strong conviction that it is ultimately a race worth saving.

D THE VIKING ATLAS OF EVOLUTION by Roger Osbourne

Why are there no penguins in the Arctic, or polar bears in Antarctica? How is it that camels and llamas are so closely related, yet they live so far apart? The answers come down to the fact that evolution takes place according to geographical location as well as time. Using photographs, superb illustrations and more than 100 maps showing distributions of organisms, migrations, territories and biogeographic regions, the atlas graphically highlights the impact geography has had on the development of life on Earth. It charts the origins, evolution and spread of plants, reptiles, birds and mammals worldwide. It also investigates the way people have altered the world they live in, from the introduction of exotic species into fragile ecosystems to the destruction of habitats and the domestication of wild species. The accompanying text is highly informative. The atlas does not review the evolution of every 'important' life form on the planet. Rather, it chooses several case studies to highlight the evolutionary process in differing geographical settings.