

## Pablo's Armchair Treasure Hunt 2014: Solution and Marking Scheme

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Please be aware that these solution notes contain spoilers—for the hunt of course, but also for the thematic works to which it makes reference.

Items for which marks are awarded are indicated by a code in square brackets in the text below. The code consists of a letter indicating the general category followed a numerical index within the category.

### Overall theme

The overall theme of the hunt is *Life*, represented by three sub-themes.

- *The Hitchhiker's Guide to the Galaxy* series by Douglas Adams: the third book in the series is called *Life, the Universe and Everything*, Marvin says 'Life? Don't talk to me about life', and the number 42, the answer to the ultimate question of life, the universe and everything, plays a central role in the hunt
- DNA and its structure: the 'code of life'
- *La Vie mode d'emploi* by Georges Perec, translated as *Life a User's Manual*, a novel about life and jigsaw puzzles: we didn't expect hunters to go to the trouble of obtaining, let alone reading, a 700-page novel in French, and so we tried to make it possible to complete the hunt without reference to it; but nevertheless we hope anyone who did settle down to read it (or its excellent English translation) over Christmas enjoyed it!

Pablo's Armchair Treasure Hunt was also brought to you this year by the letter 'X' and the number 42.

Other apparent threads running through the hunt, such as European languages, Tom Stoppard, *The Muppet Show*, 1970s television and trainspotting, are merely fixations of (one of) the setters.

### Structure

Central to the hunt are four 'bases' which hunters had to identify. The bases correspond to the four (nucleo-)bases in DNA: adenine (A), cytosine (C), guanine (G) and thymine (T).

Each base has a thematic colour, used, for example, to frame puzzles leading to that base.

The base locations are as follows.

- A Avebury stone circle
- C Cyclepath DNA sculpture, near Cambridge
- G Glastonbury Tor
- T Thirkill Court DNA sculpture, Cambridge

Hunters are led to the base locations via messages and hints in the questions and via puzzles as described below. A further message (the 'intersection construction') tells hunters to draw two straight lines on a map, one through bases A and G and the other through bases C and T; where the lines intersect is very close indeed to the treasure location.

A final message tells hunters how to locate the treasure box precisely given the (approximate) intersection point.

## The four bases

### Base A

- DNA nucleobase: adenine [A1]
- Thematic colour: green
- Physical location: Avebury stone circle [A2], URC chapel near centre [A3]

### Puzzle A1

These are images of XTC [A4.1], David Hempleman-Adams [A4.2], Mark Lamarr [A4.3] and Nick Hower [A4.4], all originating in **Swindon** [A4.5].

### Puzzle A2

These are images of Brutus 'The Barber' Beefcake [A5.1], Samuel Barber's *Adagio for Strings* [A5.2], code illustrating the 'sleeping barber problem' [A5.3], and *A barber-surgeon at work* by F A Maulbertsch [A5.4]; the link is **Barber** [A5.5].

### Puzzle A3

This is an image of the 'Chaise du Diable' (**Devil's Chair** [A6] in English), a climbing site in France.

Swindon, Barber and Devil's Chair are all names of particular stones at Avebury [A7].

### Base C

- DNA nucleobase: cytosine [C1]
- Thematic colour: blue
- Physical location: DNA sculpture [C2], at the north end of the 'DNA cyclepath' decorated with coloured stripes giving the DNA sequence of the BRCA2 gene, linking Addenbrooke's hospital and Great Shelford near Cambridge [C3]

### Puzzle C1

This is a (doctored) image of a railway milepost [C4.1] indicating a distance of  $53\frac{3}{4}$  miles [C4.2]. The DNA sculpture is located immediately adjacent to the London Liverpool Street to Cambridge railway line [C4.3], at a distance of  $53\frac{3}{4}$  miles from London [C4.4] as measured along the track route. Hunters not having access to the relevant Network Rail Sectional Appendix could interpolate from publicly-available information on Wikipedia, for example.

Unfortunately the structure of DNA was discovered a few months earlier than  $1953\frac{3}{4}$ .

## Puzzle C2

This is a plan of the Hallett [C5.1] motor racing circuit in Oklahoma. The DNA sculpture is by Katy Hallett [C5.2].

## Puzzle C3

This is a Scrabble board [C6.1], in stone-age style reminiscent of the Scrabble scene at the end of *The Restaurant at the End of the Universe* [C6.2]. The board includes the words WHAT DO YOU GET IF YOU MULTIPLY SIX BY NINE [C6.3], the words Arthur Dent spells out using the tiles, as well as DEEP THOUGHT [C6.4], the computer tasked with finding the answer to the ultimate question, and ATH. The optimum play with the tiles shown below the board (given a suitably liberal dictionary) is to extend ATH into CYCLEPATH [C6.5], scoring 42 [C6.6] and answering the ultimate question, if not the garbled version from Arthur's subconscious that appears on the board.

## Base G

- DNA nucleobase: guanine [G1]
- Thematic colour: orangey-yellow
- Physical location: Glastonbury Tor [G2], St Michael's tower [G3]

## Puzzle G1: six-by three grid of maps

Each row leads to a location whose name has a connection with *The Hitchhiker's Guide to the Galaxy* as follows.

- Adams Road [G4.1]: author Douglas Adams
- Rue de Vogon [G4.2]: alien race of Vogons
- Arthur's seat [G4.3]: Arthur Dent, protagonist [G4.4]
- Lazlar [G4.5]: Lazlar Lyricon, starship pimper [G4.6]
- Oglá [G4.7], inset picture is Albrecht von Roon [G4.8]: Oglaroon, forest planet [G4.9]
- Ningi [G4.10]: impractical coinage [G4.11]

In order the initial letters of the thematic words spell out **AVALON** [G4.12], identified with Glastonbury [G4.13] by Robert de Boron: see also puzzle G4.

## Puzzle G2: four-by-two grid of maps

Each map indicates an airport or group of airports as follows.

Top row:

- Toledo / Luiz dal Canalle Filho, Brazil [G5.1]

- Ernabella, South Australia [G5.2]
- Ravenna / La Spreta, Italy [G5.3]
- Dehradun / Jolly Grant, India [G5.4]

Bottom row:

- Astrakhan / Narimanovo, Russia [G5.5]
- Chicago O'Hare, Illinois, USA [G5.6]
- Stockholm (all airports), Sweden [G5.7]
- Welkom, South Africa [G5.8]

The yellow regions in the map of Illinois are Douglas County and Adams County [G5.9].

In order, the three-character IATA codes for these airports are TOW, ERB, RAN, DED, ASF, ORD, STO, WEL [G5.10 to G5.17], spelling out **TOWER BRANDED AS FORD'S TOWEL** [G5.18].

Ford Prefect's towel in *The Hitchhiker's Guide to the Galaxy* is from Marks and Spencer [G5.19]. At the time Marks and Spencer goods were branded 'St Michael' [G5.20], which is also the name of the church tower atop Glastonbury Tor [G5.21].

### **Puzzle G3: map with Cyrillic text**

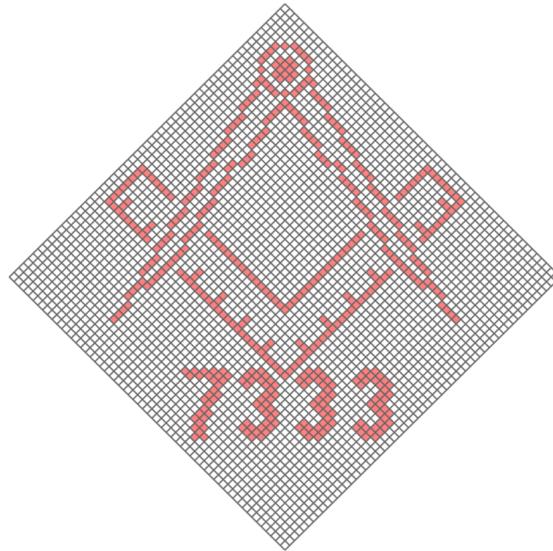
The map is of Ukraine [G6.1], and the indicated city is Sloviansk [G6.2]. The Cyrillic text is Ukrainian [G6.3] for 'before the year 1784' [G6.4]. Before 1784 the city was known as 'Tor' [G6.5], as in 'Glastonbury Tor'.

### **Puzzle G4: chemistry video stills**

The three images are from the excellent University of Nottingham *Periodic Videos* [G7.1] series featuring Prof Martyn Poliakoff, specifically the video for the element boron [G7.2]. Robert de Boron [G7.3] is responsible for setting the Holy Grail myth in Glastonbury [G7.4], which he identified with Avalon: see also puzzle G1. As a further assistance to hunters we arranged for Prof Poliakoff to receive a knighthood in the 2015 New Year Honours list, and so you may have seen his distinctive hair on the news.

### **Base T**

- DNA nucleobase: thymine [T1]
- Thematic colour: red
- Physical location: DNA sculpture [T2], in front of Thirkill Court, Clare College, Cambridge [T3]



**Puzzle T1: diamond-shaped grid containing pattern of dots**

As the footnote suggests, this is to be interpreted as a pattern in the Game of Life [T4.1], a cellular automaton invented by J H Conway in 1970. Iterating the pattern by one generation [T4.2] gives an image of a Masonic square and compasses [T4.3] and the number 7333 [T4.4].

Masonic lodge number 7333 is called Thirkill Lodge after Sir Henry Thirkill [T4.5], after whom Thirkill Court, Clare is also named [T4.6]. A lodge in freemasonry refers to an organisational unit rather than a place, and so the intent was to clue the name 'Thirkill' rather than the building on Bateman Street, Cambridge, where they—as well as other lodges—meet.

We hope hunters didn't spend too long entering the pattern into their computers: the idea was that squinting at the image might allow a guess at the square and compasses design, and that the number at the bottom was small enough to iterated manually.

**Puzzle T2: 'bright pan dunce...'**

These are words in 'Dogg' [T5.1], an artificial language which features in Tom Stoppard's short play *Dogg's Hamlet* in which the audience is taught the language as the play progresses. Only a very limited vocabulary is available, but we do at least have a set of words corresponding to numbers [T5.2] as follows.

- 0 quite
- 1 sun
- 2 dock
- 3 trog
- 4 slack
- 5 pan
- 6 sock
- 7 slight
- 8 bright
- 9 none
- 10 tun
- 11 what
- 12 dunce

The message therefore reads

8 5 12 9 3 1 12  
 3 0 12 12 5 7 5  
 5 4 9 6 9 3 5

and converting the numbers to letters using A=1, B=2 etc. [T5.3] plus O=0 yields the message HELICAL COLLEGE EDIFICE [T5.4], referring to the helical sculpture by the road leading to Thirkill Court at Clare College, Cambridge.

## Questions

The hunt contains 63 questions, a first group (Group I) numbered 1 to 41 and a second group (Group II) numbered 43 to 64. The answer to each question consists of two words (or at least has two significant words) from which the initial letters are to be taken, or otherwise gives rise to two letters. Marks are available for finding the two letters [Qx.1, Qx.2] and for explaining how they arise [Qx.3]. Some of the questions also have thematic links, for which further marks are available as listed below.

The tables below also give the sum of the two letters yielded by each answer, and the five-letter fragment thus obtained from the question text: see under 'The intersection construction' below for details of how these fragments are used.

### Group I

Q1	Denys Hawthorne	D	H	12	COEDC	Denys Hawthorne played Mr Starling in the first series of <i>Grange Hill</i> , which shared its theme tune 'Chicken Man' with <i>Give Us a Clue</i>
Q2	Ed O'Brien	E	O	20	OVERR	the Radiohead track is <i>Paranoid Android</i>

Q3	Cheri Oteri	C	O	18	WAYAN	Cheri Oteri played Gail Hailstorm in <i>Scary Movie</i> , created by Keenan Ivory Wayans with his younger brothers, Shawn Wayans and Marlon Wayans; the franchise went up to <i>Scary Movie 5</i>
Q4	Ἀπολούμεθα Παντελῶς	A	P	17	NGPYR	The quotation translates as 'if we beat the Romans in one more battle, we'll be completely ruined' and is the origin of the phrase 'Pyrrhic victory'; fortunately the indices of the letters in the Greek alphabet are the same as those of their transliterations in the Roman alphabet
Q5	David Yost	D	Y	29	IDGET	David Yost played Blue Ranger in <i>Mighty Morphin Power Rangers</i> ; Bridgett Riley (not the artist!) was a stunt double for Yellow Ranger in a couple of early episodes
Q6	.es	E	S	24	ETHRO	Spain, reigning FIFA world champions, were beaten by the Netherlands in a 2014 FIFA world cup match played at the Arena Fonte Nova ('New Fountain'), and by Chile, confirming their dethroning, at the Maracanã (a type of green parrot) stadium
Q7	Oliver Twist	O	T	35	NTERS	Oliver Twist runs into the Artful Dodger, a pickpocket whose real name is Jack Dawkins; celebrity atheist Richard Dawkins was a friend of Douglas Adams
Q8	Frederick Law Olmsted	F	O	21	OUGHP	Frederick Law Olmsted designed the gardens at Rough Point; the route is Ocean Parkway
Q9	Bernard Nightingale	B	N	16	TBRID	From the Tom Stoppard play <i>Arcadia</i>
Q10	Obliquity of the Ecliptic	O	E	20	SECTI	The number is given in the title track of the album <i>Albedo 0.39</i> by Vangelis (Evangelos Papathanasiou)
Q11	Ohio State	O	S	34	HFRES	The chap is Fred Baur, inventor of the Pringles can, popular for making cantennas
Q12	Karan Casey	K	C	14	EARTW	The Burns poem is <i>Ae Fond Kiss</i> ; the album is <i>Ships in the Forest</i> ; SS Ayrfield is a forest in a ship
Q13	Sydney, Hobart	S	H	27	ACHTR	The Sydney to Hobart Yacht Race, also called the Bluewater Classic, is held around late December, during the Australian summer
Q14	Bryan Adams	B	A	3	OREAC	The song is <i>Young Lust</i>

Q15	Oscar Peterson	O	P	31	OOTBR	Oscar Peterson was known as the 'maharajah of the keyboard' and played on <i>Zoot Sims and the Gershwin Brothers</i>
Q16	Ottoman Empire	O	E	20	SINGP	The opera is <i>Miriways</i> (sorry!), the dynasty is the Hotaki, founded 1709, and the war is the Ottoman–Persian War 1722–27 (according to Wikipedia, at least; other sources suggest hostilities did not begin until at least 1723)
Q17	Kabale und Liebe	K	L	23	SAMEU	<i>Kabale und Liebe</i> ('intrigue and love') by Schiller was the basis for <i>Luisa Miller</i> by Giuseppe Verdi ('Joe Green'); 'meunière' is French for 'miller's wife'
Q18	Subhas Chandra Bose	S	B	21	YRIMI	The work of 'documentary theatre' <i>Call Cutta</i> involves live performers working at an Indian call centre
Q19	Bernard Youens	B	Y	27	TWORK	Bernard Youens played Stan Ogden (married to Hilda, played by Jean Alexander) in <i>Coronation Street</i>
Q20	Ross Perot	R	P	34	DRAWL	Ross Perot was mocked for his drawl during his 1996 presidential run and for his unprofessional re-entry into the 1992 election
Q21	Imre Ungár	I	U	30	INEAR	Imre Ungár tied for first prize in the 1932 International Chopin Piano Competition, the final result being decided on a coin toss
Q22	E Barrington	E	B	7	SBYAF	The work is <i>The Thunderer. A Romance of Napoleon and Josephine</i> , 1927; 'The Thunderer' is a nickname for <i>The Times</i>
Q23	Fruit Ninja	F	N	20	ECTIO	The game involves repeatedly cutting up fruit
Q24	Luton Airport	L	A	13	ONISB	Lorraine Chase featured in an advert for Campari, an ingredient of the Negroni Sbagliato cocktail, in which she was asked if she had been 'wafted here from Paradise'; she replied 'Nah—Luton Airport'
Q25	Yo-Yo Ma	Y	M	38	TERSE	Yo-Yo Ma contributed a recipe for 'Barbecued Spareribs with Beer and Honey' to the book <i>In the Kitchen with Miss Piggy</i> ; Jodie Foster contributed 'Penne with Broccoli Rabe' and Norman Schwarzkopf 'Sour Cream Peach Pie'
Q26	Kenneth Evans	K	E	16	GETOR	Kenneth Evans became suffragan Bishop of Dorking; base T link: Evans was a Clare alumnus

Q27	Elephants Dream	E	D	9	SINTE	This was the first ever open-source animated film, followed by <i>Big Buck Bunny</i> and <i>Sintel</i>
Q28	Pugsley Addams	P	A	17	URCHW	Pugsley Addams and his sister sell lemonade which causes Lurch to spit flames
Q29	Treasure Seekers	T	S	39	ROMNE	<i>The Story of the Treasure Seekers</i> was written by E Nesbit, who, at the end of her life, was a resident of Romney Marsh
Q30	Bi	B	I	11	HTREA	Bismuth is sometimes used as an alternative to antibiotics
Q31	Yes and No	Y	N	39	EASUR	From Ian Dury's <i>Yes and No (Paula)</i> : 'Have you got a clarinet?... Yes and no'; when initially approached to write the libretto for <i>Cats</i> he refused because 'I hate Andrew Lloyd Webber. He's a w***er, isn't he?... every time I hear <i>Don't Cry for Me Argentina</i> I feel sick, it's so bad. He got Richard Stilgoe to do the lyrics in the end, who's not as good as me. He made millions out of it. He's c**p, but he did ask the top man first!'
Q32	Test tubes	T	T	40	MNEAR	Test tubes are among the surprisingly wide variety of items (including 'planets', 'members', 'limestone' and 'wisdom') claimed by Herbert Brokering to make a noise in <i>Earth and All Stars</i>
Q33	Hendrik Verschuring	H	V	30	YPLAC	Hendrik Verschuring was a pupil of Jan Both and a contemporary of Aelbert Cuypp; he guided Joan Huydecoper ('pelt buyer') II on his grand tour
Q34	Isle of Ely	I	E	14	ERRAI	Ely is a sea; Anguilla is the genus of eels
Q35	Scritti Politti	S	P	35	HROUG	Scritti Politti (a deliberate approximation of the Italian for 'political writings') recorded a track <i>Jacques Derrida on Songs to Remember</i> ; the record label was Rough Trade
Q36	Cast iron	C	I	12	ARBYV	The monument (technically, according to the relevant Act, ancient) is the Iron Bridge, the first of its kind
Q37	Hazel Scott	H	S	27	RKSIN	Hazel Scott was known for 'swinging the classics' and featured in Café Society's <i>From Bach to Boogie-Woogie</i> concerts in 1941 and 1943 at Carnegie Hall; she also starred in the 1945 film <i>Rhapsody in Blue</i>

Q38	Urban Outfitters	U	O	36	AILWA	Urban Outfitters was forced to withdraw its 'Jesus Dress Up' refrigerator magnets in 2004 after complaints orchestrated by the websites OneMillionMoms.com and OneMillionDads.com
Q39	Richard L Daft	R	D	22	TIONI	Richard L Daft analysed the stages of the organisational life cycle in his book <i>Organizational Theory and Design</i> ; base C link: 'cycle'
Q40	Chris Evans	C	E	8	MIDIN	Chris Evans was sacked from Virgin Radio on 28 June 2001 after an 18-hour bender on 20 June; one of his early shows was called <i>Too Much Gravy</i>
Q41	Henry Irving	H	I	17	YAFOO	Henry Irving famously portrayed Hamlet (telling her to 'get thee to a nunnery') alongside Ellen Terry

## Group II

Q43	Karen Clark(e)	K	C	14	DCHUR	Karen Clark(e) (sources disagree on the spelling) is US Assistant Secretary of State for Diplomacy in the film <i>In the Loop</i> ; the spin-doctor is Malcolm Tucker
Q44	Hollis Hall	H	H	16	EHOLY	Hollis Hall is at Harvard
Q45	Stad Amsterdam	S	A	20	AWLIN	The author is Redmond O'Hanlon
Q46	CR	C	R	21	ITHFR	This refers to a quotation from <i>The Hitchhiker's Guide to the Galaxy</i> , where Ford Prefect claims Zaphod is 'not bloody Martin Smith from Croydon'; the Croydon postcode area is abbreviated CR
Q47	Useless Loop	U	L	33	INETH	Useless Loop in Western Australia is home to a shelter for the burrowing betong, or boodie; Louis Henri de Saulces de Freycinet named the harbour 'Havre Inutile'
Q48	Legal Eagles	L	E	17	ALKOV	Robert Redford was the lead actor and László Kovács was director of photography
Q49	Pratap Singh	P	S	35	HPURI	Pratap Singh of Idar was regent to three of his relations while they were on the throne of Jodhpur; he improved and popularised the style of riding trousers known as jodhpurs

Q50	The Joker	T	J	30	YVILL	Batman baddie The Joker was based on Conrad Veidt's portrayal of Gwynplaine in <i>The Man who Laughs</i> , an adaptation of the Victor Hugo novel of the same name
Q51	Umberto Eco	U	E	26	NEART	In <i>The Name of the Rose</i> , there is a conversation between Abo (abbot of the Benedictine monastery) and William (a Franciscan friar) where William states '...It is always done because on earth there does exist a hell, where lives the flock whose shepherds we no longer are.'
Q52	Ross Nichols	R	N	32	AGEWI	Ross Nichols is the founder of the Order of Druids and translated the book <i>The History and Practice of Magic</i> by Jean Baptiste (aka Paul Christian); base A link: Avebury is a popular setting for druidic rites
Q53	EDIT.COM	E	C	8	SDOSA	The domain edit.com belongs to an outfit based in Solihull
Q54	AK	A	K	12	RINEH	The Alaska Marine Highway
Q55	Telephone Sanitisers	T	S	39	REFRO	In <i>The Restaurant at the End of the Universe</i> the telephone sanitisers were frozen in the Golgafrinchan Ark Fleet Ship B, or the 'B Ark'
Q56	Farhad Safinia	F	S	25	AYAND	Farhad Safinia co-wrote <i>Apocalypto</i> with Mel Gibson, entirely in Yucatec Maya
Q57	Intolerable Cruelty	I	C	12	ESCOE	The actor is Billy Bob Thornton; the film referred to is <i>The Man Who Wasn't There</i>
Q58	Valentino Urbani	V	U	43	EUSIN	Valentino Urbani was a castrato who sang in the premières of <i>Il pastor fido</i> and of <i>Teseo</i>
Q59	Esther Lederberg	E	L	17	LYPLA	Depending on whom you believe, Esther Lederberg either invented replica plating or knew where to buy velvet and how to wash it; discovered F factor or gave it its name; and may or may not have discovered lambda phage
Q60	Pablo Picasso	P	P	32	UREFR	Pablo Picasso lived in former mediaeval castle the Château of Vauvenargues
Q61	Rathausball-Tänze	R	T	38	CHWAL	Johann Strauss II's Rathausball-Tänze was beaten by Carl Michael Ziehrer's Wiener Bürger waltz op 419 in a competition to honour the opening of the new banqueting hall at the Vienna Rathaus in 1890

Q62	Ian Underwood	I	U	30	GEWIT	Side 2, track 8 of <i>Uncle Meat</i> , the fifth studio album by the Mothers of Invention, is called <i>Ian Underwood Whips It Out (Live on stage in Copenhagen)</i>
Q63	Musgrave Ritual	M	R	31	ACESD	From the Sherlock Holmes story <i>The Adventure of the Musgrave Ritual</i> : 'From this starting-point I proceeded to step, having first taken the cardinal points by my pocket-compass. Ten steps with each foot took me along parallel with the wall of the house, and again I marked my spot with a peg. Then I carefully paced off five to the east and two to the south. It brought me to the very threshold of the old door. Two steps to the west meant now that I was to go two paces down the stone-flagged passage, and this was the place indicated by the Ritual.'
Q64	Emily Eavis	E	E	10	ILLAG	Emily Eavis played violin at Glastonbury festival in 1985 and co-organised the festival from 2000; base G link: Glastonbury

Question 42 (the 'answer to the ultimate question' in *The Hitchhiker's Guide to the Galaxy*), which separates the two groups, is special in that it consists of an X-shaped [Q42.1] diffraction image of a DNA molecule [Q42.2]: the so-called 'photo 51' [Q42.3], which was critical to the understanding of DNA's double-helix structure.

### Initial letters of question answers

The letter pairs arising from the answers to the questions yield messages that help indicate the physical locations of the four bases as follows.

#### Group I, first letter

**DECADE** [I1.1] **OF** [I1.2] **BOOK'S** [I1.3] **BOOKS** [I1.4] **BRIEFLY** [I1.5] **KEPT** [I1.6] **BY** [I1.7] **THIS** [I1.8] **CHURCH** [I1.9]

Corresponding base: G

This is a reference to the following quotation from *Life, the Universe and Everything* [I1.10]:

Glastonbury had long been associated with myths of ancient kings, witchcraft, ley-lines and wart curing, and had now been selected as the site for the new Hitch Hiker's Guide financial records office, and indeed, ten years' worth of financial records were transferred to a magic hill just outside the city mere hours before the Vogons arrived.

The 'magic hill' can be identified as Glastonbury Tor [I1.11] and hence the church is St Michael's Church [I1.12], the ruin atop the tor.

The line through Glastonbury in the 'intersection construction' follows the ley-line known as the St Michael Ley [I1.13].

### Group I, second letter

**HOOPY** [I2.1] **STONES** [I2.2] **CHAPEL** [I2.3] **BY** [I2.4] **PUB** [I2.5] **NAMED** [I2.6] **AS** [I2.7] **IN** [I2.8] **TV** [I2.9] **EPISODE** [I2.10] **I** [I2.11]

Corresponding base: A

The 'hoopy stones' are the circle (or 'hoop') of stones [I2.12] at Avebury. The name of the pub shown in episode 1 of the TV series of *The Hitchhiker's Guide to the Galaxy* is the Red Lion [I2.13]; the URC chapel at Avebury is next to a pub of the same name [I2.14] amid the stones.

### Group II, first letter

**KH** [I3.1] **SCULPTURE** [I3.2] **AT** [I3.3] **FIVE** [I3.4] **PRIME** [I3.5]

Corresponding base: C

The cyclepath DNA sculpture is by Katy Hallett (KH) [I3.6]. There are in fact two such sculptures, one at each end of the cyclepath; AT FIVE PRIME identifies the sculpture at the start (the 'five prime end' of the DNA molecule [I3.7]) of the BRCA2 gene sequence: this is the more northerly one.

### Group II, second letter

**CHARLES** [I4.1] **JENCKS** [I4.2] **SCULPTURE** [I4.3]

Corresponding base: T

The DNA sculpture at Thirkill Court, Clare College, is by Charles Jencks [I4.4].

## Vignetted images

There are 63 vignetted images in the hunt, listed here in reading order. The number of the corresponding question is given in each case.

- Q63 Scene from *The Musgrave Ritual* at the Sherlock Holmes museum
- Q55 Some bark
- Q58 Theseus in the Tuileries
- Q12 Poster for Ken Loach film *Ae Fond Kiss*
- Q47 A boodie
- Q4 Pyrrhic foot: two short/unstressed syllables
- Q34 Eels, pie and mash
- Q59 Culture in a Petri dish
- Q21 Chopin
- Q25 Penne with broccoli rabe
- Q1 Sausage from the *Grange Hill* title sequence

- Q16 Mir Wais Hotak
- Q9 MS Arcadia in Copenhagen
- Q20 Ross Perot
- Q19 *Coronation Street* scene
- Q32 Laboratory glassware
- Q36 Abraham Darby rose
- Q26 Thirkill Court
- Q27 Still from *Big Buck Bunny*
- Q11 Pringles
- Q17 Schiller
- Q30 Crystalline bismuth
- Q54 *Myosotis alpestris*, the Alaska state flower
- Q6 The FIFA World Cup trophy
- Q37 *Café Society* poster
- Q40 The 'Fat Controller', an insult Evans used on air against then controller of Radio 1  
Matthew Bannister
- Q49 Pratap Singh
- Q33 Both painting
- Q14 Thing dialling
- Q18 Subhas Chandra Bose
- Q56 Cover of Alastair Campbell's book *Maya*
- Q29 Still from *The Treasure Seekers*
- Q22 Napoleon
- Q44 Harvard Stadium
- Q15 Oscar Peterson
- Q41 Nuns from *The Sound of Music*
- Q60 One of Cézanne's many efforts at Mont Sainte-Victoire, at the foot of which the castle stands
- Q48 Mr Kovács
- Q46 Ms Beckham sporting a 'Croydon facelift'
- Q5 A blue Ford Ranger
- Q7 Engraving from *Oliver Twist*
- Q50 'Best Bower' playing card, immediate precursor to the joker
- Q53 MS-DOS starting
- Q45 Cover of another of O'Hanlon's books
- Q52 Druidic logo
- Q38 Normal Bob Smith, designer of the magnets
- Q3 *Scary Movie* 'scream' mask
- Q28 Morticia Addams
- Q62 Bust of Frank Zappa, whom the Mothers backed
- Q64 Glastonbury FC players
- Q13 Bus destination Bluewater
- Q35 Derrida saying 'viola'
- Q2 Still from *Paranoid Android* video
- Q39 Daft forest of 'cyclists dismount' signs in Harlow
- Q24 A Negroni Sbagliato
- Q57 Billy Bob Thornton as Santa

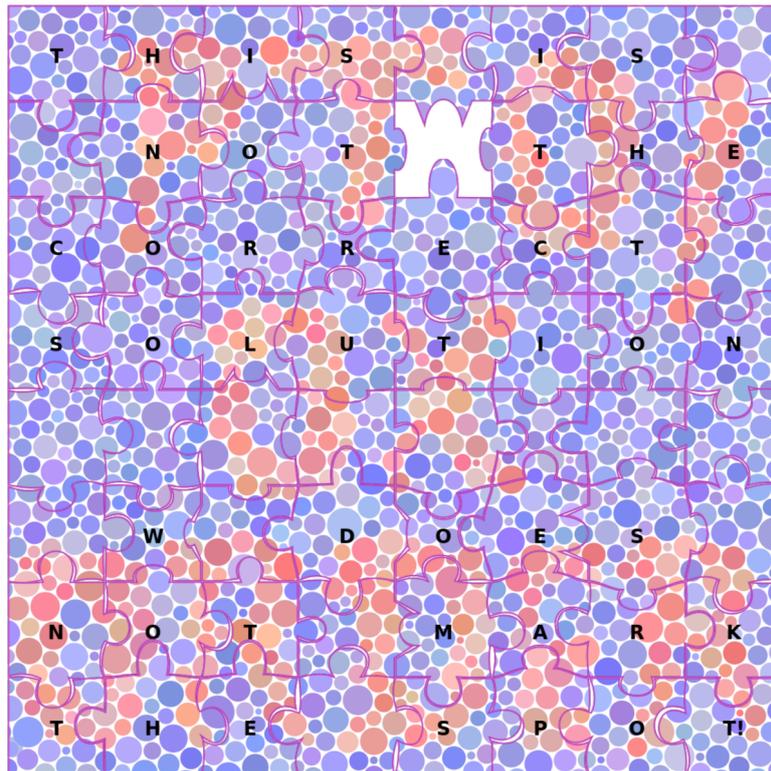
- Q43 Cropped still from *In the Loop*
- Q8 Ocean Parkway NY metro stop
- Q23 Kawasaki Ninja
- Q51 William, in Italian, in Baskerville
- Q61 Vienna Rathaus
- Q10 Mr Papathanasiou
- Q31 *Laughter* album cover

[V1.1 to V41.1, V43.1 to V64.1 for identifying the image corresponding to the question of that number; V1.2 to V41.2, V43.2 to V64.2 for convincing us that you understand the connection between the image and that question or answer].

There is no vignettted image corresponding to question 42.

## Jigsaw

There are 63 jigsaw pieces in the hunt. Each is decorated with red and blue circles in the style of a colour-blindness test (although red-blue colour-blindness is rather rare) and many also include a letter. The pieces can be assembled, using the circles to guide you, into an eight-by-eight square with one missing piece [J1] as follows.



The black letters spell out **THIS IS NOT THE CORRECT SOLUTION W DOES NOT MARK THE SPOT!** [J2]

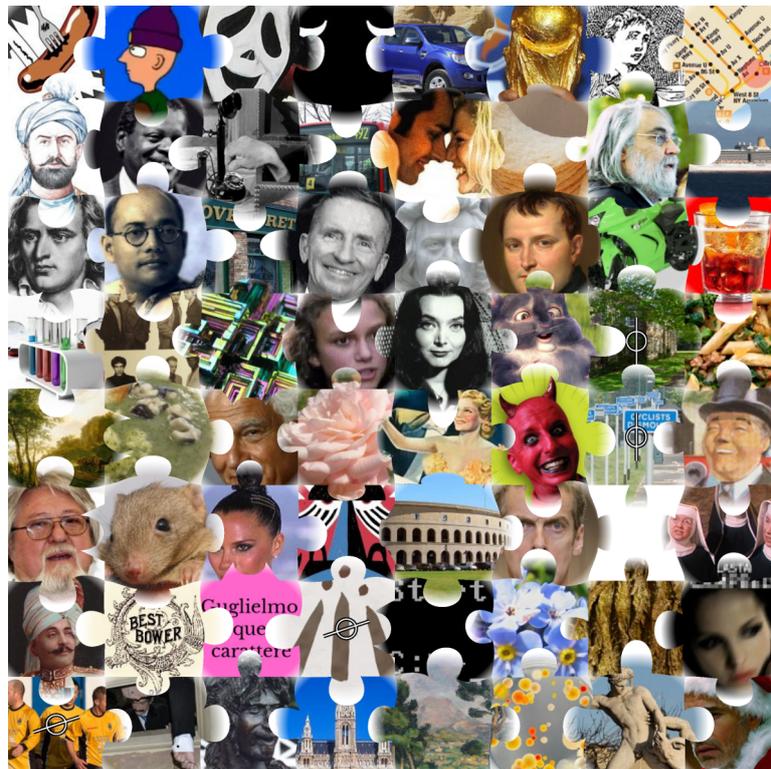
The colour-blindness test reveals the message **PTO OX ORDER** [J3] in a font similar to one of

those used to provide the large friendly letters on the cover of the book in *The Hitchhiker's Guide to the Galaxy*.

These are instructions to turn the pieces over and find a new solution to the puzzle [J4]: 'PTO' is the conventional abbreviation for 'please turn over' and 'ox order' refers to the 'boustrophedon' [J5] ('as the ox turns') style of writing seen in ancient inscriptions where lines are written alternately left-to-right and right-to-left [J6].

Further hints to this are provided in the hunt in the form of definitions from a (modern) Greek dictionary [J7] defining 'βουστροφηδόν' ('boustrophedon') (itself presented in boustrophedon style [J8]) and 'παζλ' ('jigsaw puzzle') [J9]. We advise hunters who claimed that 'boustrophedon' has to do with pleasuring oxen to be more cautious when using the output of Google Translate in future.

If the hunt is printed out on both sides of the paper, then when the pieces are turned over it is found that there is a vignettted image on the reverse of each [J10]. The cross-hair marks can be used to check the alignment of the two sides of the printout [J11]. When the pieces are arranged with the images in boustrophedon order of their corresponding questions—that is, with the images for questions 1 to 8 across the top row, those for questions 16 down to 9 in the second row, and so on—a second solution to the jigsaw puzzle is produced [J12]. In this solution all the images are the right way up.



As can just about be discerned from the figures here, the pieces do not fit perfectly in the first solution but they do in the second [J13].

The shape of the missing piece in the first solution resembles (with a little imagination) the letter W [J14]; that in the second resembles the letter X [J15]. The message 'W does not mark

the spot', along with the treasure-hunting tradition that 'X marks the spot', together also help indicate that it is the second solution that is needed.

The final scene of *Life a User's Manual* involves an almost-complete jigsaw puzzle with a gap in the shape of the letter X, but with the left-over piece having the shape of the letter W: the jigsaw element of the hunt is an *homage* to this [J16].

Marks relating to the four special images on jigsaw pieces corresponding to bases are described below under 'The intersection construction'.

## Shotgun code: fragments of DNA scattered throughout the hunt

There are 31 fragments of DNA, each five amino-acids long, scattered randomly throughout the hunt. Each fragment can be decoded using the thematic colours for the bases [S1] and the standard one-letter symbols for the corresponding amino-acids [S2] via the 'genetic code' [S3]. As a hint this method was also used, with the decoded message given explicitly, for the 'MERRY CHRISTMAS' baubles in the poster.

Each fragment therefore leads to a sequence of five letters. There are overlaps of two or three letters between the ends of the fragments and the starts of others, and the overlaps allow the 31 fragments to be arranged in order as follows: EACHA, HANSW, SWERG, RGIVE, VESAL, SALET, LETTE, TTERP, ERPAI, AIRAD, RADDT, DDTHE, HEMAN, MANDF, NDFIN, INDPL, DPLAC, LACEI, EINQW, NQWHE, HEREF, REFIV, IVECH, ECHAR, ARACT, CTERF, RFRAG, RAGME, MENTS, NTSTA, TARTS.

Removing the duplicated parts of the fragments produces the following message:

**EACH** [S4.1] **ANSWER** [S4.2] **GIVES** [S4.3] **A** [S4.4] **LETTER** [S4.5] **PAIR** [S4.6] **ADD** [S4.7] **THEM** [S4.8] **AND** [S4.9] **FIND** [S4.10] **PLACE** [S4.11] **IN** [S4.12] **Q** [S4.13] **WHERE** [S4.14] **FIVE** [S4.15] **CHARACTER** [S4.16] **FRAGMENT** [S4.17] **STARTS** [S4.18]

[Complete message in correct order: S5]

This message describes the method by which the 'intersection construction' message is obtained, Q abbreviating QUESTION (which cannot be encoded using this method).

The reconstruction of a message from short overlapping fragments is analogous to the 'shotgun' [S6] technique used for sequencing long DNA strands.

## The intersection construction

Applying the instruction in the message obtained from the DNA fragments to each question yields a further set of 63 five-letter fragments. For example, the letter pair from question 1 is DH. Using the conventional coding [X1] where D=4 and H=8, we add the letters [X2] and obtain D+H=12. Starting at the the indicated letter of the question [X3], and discounting spaces [X4] and punctuation [X5] as instructed, we take a five-character fragment [X6]. In this example ('In the famous CO-ED Comprehensive...') the resulting fragment is COEDC.

The set of fragments obtained is as follows, in question order.

COEDC	OVERR	WAYAN	NGPYR	IDGET	ETHRO	NTERS
OUGHP	TBRID	SECTI	HFRES	EARTW	ACHTR	OREAC
OOTBR	SINGP	SAMEU	YRIMI	TWORK	DRAWL	INEAR
SBYAF	ECTIO	ONISB	TERSE	GETOR	SINTE	URCHW
ROMNE	HTREA	EASUR	MNEAR	YPLAC	ERRAI	HROUG
ARBYV	RKSIN	AILWA	TIONI	MIDIN	YAFOO	DCHUR
EHOLY	AWLIN	ITHFR	INETH	ALKOV	HPURI	YVILL
NEART	AGEWI	SDOSA	RINEH	REFRO	AYAND	ESCOE
EUSIN	LYPLA	UREFR	CHWAL	GEWIT	ACESD	ILLAG

They can be assembled, again using the shotgun method [X7], to produce the following message.

**DRAW** [X8.1] **LINE** [X8.2] **THROUGH** [X8.3] **PURINE** [X8.4] **HOLY** [X8.5] **PLACES** [X8.6]; **DO** [X8.7] **SAME** [X8.8] **USING** [X8.9] **PYRIMIDINE** [X8.10] **ARTWORKS** [X8.11]. **INTERSECTION** [X8.12] **IS** [X8.13] **BY** [X8.14] **A** [X8.15] **FOOTBRIDGE** [X8.16]. **TO** [X8.17] **REACH** [X8.18] **TREASURE** [X8.19] **FROM** [X8.20] **NEARBY** [X8.21] **VILLAGE** [X8.22] **WITH** [X8.23] **FRESCOED** [X8.24] **CHURCH** [X8.25] **WALK** [X8.26] **OVER** [X8.27] **RAILWAY** [X8.28] **AND** [X8.29]...

[Complete message in correct order: X9]

The ‘purine holy places’ are bases G and A [X10]: guanine and adenine are purines [X11] and the physical locations are both holy places [X12].

The ‘pyrimidine artworks’ are bases T and C [X13]: thymine and cytosine are pyrimidines [X14] and the physical locations are both artworks [X15].

If two straight lines are drawn on a map as instructed, their intersection is near the village of Ickleton in Cambridgeshire [X16]; more precisely, it is near a footbridge over the river Cam roughly to the east of the village [X17]. The church of St Mary Magdalene [X18] in the village is known for its racy frescoes [X19], uniquely well preserved. A level crossing separates the the footbridge from the village.

Four of the vignettted images carry black-and-white alignment marks [X20]. The four images are those associated with the four thematic questions [X21] and thus can be identified with the four bases [X22]. In the second solution to the jigsaw puzzle, two of the alignment marks appear vertical and in line with one another, and two inclined a little from the horizontal, also in line with one another. Two lines can thus be drawn through the marks [X23], and the lines intersect at the missing X-shaped piece [X24]. The jigsaw can be viewed as a (not-to-scale!) map of southern England, with the four bases marked [X25], and hinting at the final geometric construction [X26].

The grid of letters below a French street sign is to be interpreted as a knight’s tour [X27]. Starting at the position of the knight in the bottom left-hand corner, it is possible to trace out the message OS COORDINATES FOR EXTRA ACCURACY [X28]. This indicates that, when drawing lines through the bases to locate the intersection point, the coordinate system used by the Ordnance Survey is preferred [X29]. We didn’t want to put hunters to the effort of calculating the two intersection points of a pair of great ‘circles’ on the WGS84 (or any other) ellipsoid; and furthermore we were worried that hunters might choose the wrong intersection point and spend valuable time checking it for hidden (presumably sunken) treasure.

The structure of *Life a User’s Manual* is based on a knight’s tour [X30] of the front elevation of a building in ‘Rue Simon-Crubellier’ [X31], in the seventeenth arrondissement of Paris [X32]. The name is in fact derived as a portmanteau of the surnames of two of Perec’s friends [X33],

Jeanette Simon and Jean Crubellier.

The coordinates of the four bases are as follows, to a precision of 1 m and an accuracy of about  $\pm 5$  m. Marks are awarded if both coordinates are within a certain tolerance of the values given: 'ulp' means 'unit in last place' of the six-figure easting or northing value, corresponding approximately to 1 m on the ground. We converted coordinates provided by hunters in latitude-longitude format to OSGB36 grid references using the Ordnance Survey on-line converter at <http://www.ordnancesurvey.co.uk/gps/transformation>, entering an 'ellipsoid height' of zero. The resulting easting and northing values were then rounded to the nearest integer: this worked in favour of one team who had an error of 100.1 ulp in their position for base T.

Base	Easting	Northing	OS Grid reference	
G	351222	138615	ST5122238615	[X34: within 100 ulp; X35: within 10 ulp]
A	410258	169933	SU1025869933	[X36: within 100 ulp; X37: within 10 ulp]
T	544338	258374	TL4433858374	[X38: within 100 ulp; X39: within 10 ulp]
C	545944	254177	TL4594454177	[X40: within 100 ulp; X41: within 10 ulp]

We would be interested in knowing the coordinates to even greater accuracy given sufficiently convincing evidence: consumer GPS equipment is typically only accurate to about 15 ulp.

Using the coordinates given above the equations of the two lines in the OS coordinate system can be derived, and solving the pair of simultaneous equations gives the intersection point as 549845, 243982 (TL4984543982) [X42: within 500 ulp; X43: within 50 ulp]. This is a few metres away from the footbridge over the river Cam, and indeed a few metres away from the actual treasure location at 549824, 243965 (TL4982443965): sufficiently close, in fact, that even the most sceptical of hunters could be excused for being persuaded of the existence of ley-lines. A speculative visit and search based solely on accurate identification of the four base locations may well have been successful, but we do not know of any teams that did this.

## The final meander (chromosome code)

The 'final meander' message and gives precise instructions for finding the treasure, continuing from the end of the intersection construction, using the 'chromosome code'.

The code takes the form of a schematic image of a chromosome [F1], its four arms colour-coded to match the four bases [F2]. (We are aware that this is biochemical balderdash.) The left-hand arms each contain 41 dots, while the right-hand arms each contain 22 dots. These naturally correspond to the four messages spelt out by the letters arising from the answers to the questions 1 to 41 and 43 to 64 [F3], as suggested by the numbers of dots and the colour coding [F4]. In the middle is an X, where the answer to the missing question 42 would otherwise appear.

A black line, which starts as a 'Greek key' or 'meander' [F5] design, then joins some of the dots in a superficially random series of arcs. It finishes at the X, another reference to 'X marks the spot' [F6], and where the four arms of the chromosome intersect [F7].

Taking the letters from the question messages in the order implied by the path yields the following message.

**THEN** [F8.1] **SOUTH** [F8.2] **EAST** [F8.3] **ONE** [F8.4] **SEVEN** [F8.5] **FIVE** [F8.6] **PACES** [F8.7] **BACK** [F8.8] **OF** [F8.9] **TREE** [F8.10] **UNDER** [F8.11] **BIRD** [F8.12] **BO(X)** [F8.13]

The final (X) is given by the X in the middle of the chromosome.

Following this instruction from the fork just over the level crossing on its east side takes one

just past the footbridge by the intersection point. On the right is a tree with a conspicuous bird box attached; the treasure was hidden at the base of the tree.

## Rubric

The text of the rubric can be interpreted as follows.

Far out in the uncharted backwaters of the unfashionable end of the western spiral arm of the galaxy, on an utterly insignificant little blue-green planet—to be more precise, somewhere towards the bottom right-hand corner of England—some ape-descended life forms have hidden a box.

This is a variation on the opening lines of *The Hitchhiker's Guide to the Galaxy* [R1].

W marks the spot!

This crossed-out text indicates that the first jigsaw solution, with the W-shaped missing piece, is not correct [R2].

You should establish four bases

This refers 'base' both in the sense of DNA (nucleo-)base [R3] and in the sense of 'starting point'.

before completing your final Meander.

This refers to 'meander' in the sense of 'wander' (to the treasure) and to the river Meander: the picture on the jigsaw in the final scene of *Life a User's Manual*—presumably corresponding to its correct solution—is of a port at the mouth of the river Meander [R4] (now Büyük Menderes) in the Dardanelles.

To this end you should make a resolution, ideally before New Year's Day.

This refers to the need to 're-solve' [R5] the jigsaw: the earlier the better, since the resolution gives the correspondence between vignettted images and questions, which (we hope) makes answering the questions easier.

Marks are awarded for answering the questions and identifying the pictures, for accuracy, and for much else besides. Twelve marks are available for registration.

This refers to the twelve cross-hair 'registration marks' [R6] provided to check the alignment of double-sided printouts.

Use both sides of the paper.

This refers to the need to print the hunt out double-sided [R7] (or find an acceptable substitute approach such as gluing single-sided printouts back-to-back).

It will help if you can tell the reds from the blues.

This is a reference to the need to be able to read the 'colour-blindness test' pattern [R8]. It is also a nod to the ATH of 2004 (the first one in which most of the setters took part), which included the advice 'it will help if you can tell the reds from the blacks'.

## Hymnboard

The bar code on the hymnboard is that of *The New Oxford Book of Carols* [H1], ISBN 978-0-19-353322-6 [H2]. The indicated carols are:

- 151 God rest you merry, gentlemen [H3]
- 181 O Tannenbaum [H4]
- 108 Ding! dong! merrily on high [H5]
- 76 Joy to the world! [H6]
- 187 Un flambeau, Jeanette, Isabelle! [H7]
- 171 Lullay, thou tiny little child [H8]

The initial letters of the carols spell out **GOD JUL** [H9].

The flags above the hymnboard are those of Denmark [H10], Norway [H11] and the Åland Islands [H12], in whose languages (Danish [H13], Norwegian (Bokmål) [H14] and Swedish [H15] respectively) 'god jul' means 'Merry Christmas' [H16]. The initial letters of the countries spell out DNA [H17]. To qualify for [H15], it is necessary to point out that Swedish is the predominant language in the Åland Islands; it is not necessary to point out that Å and A are considered different letters in Swedish.

The hymnboard pictured is located in the church at Ickleton referred to in the intersection construction message [H18]. We signed the visitors' book there, and we hope you did too.

## Miscellaneous

'By Mo, APS, IAJ, MJS, JPMC': the initials of those who had a hand in the setting of the hunt (Mark Owen, Alex Selby, Ingrid Jendrzewski, Matthew Selby and Jon Culver). Mo (molybdenum) is element 42 [M0].

Choosing the reasonably canonical names for the base locations given under 'Structure' makes them start with the same letter of the alphabet as their corresponding base. [M1]

The thematic colours for the bases correspond to those used for the stripes on the 'DNA cyclepath' that links Addenbrooke's hospital and Great Shelford near Cambridge [M2].

The four images in the hunt of molecular models are the four bases [M3.1 to M3.4], each against a background in its colour [M3.5].

The short musical score is the hook from the carol *The First Noel* [M4.1], with musical direction 'cantabile' with 'no L' [M4.2]: a Christmas greeting and a reference to Douglas Adams' middle name [M4.3].

UREVAT is the German word 'Hering' [M5.1] enciphered using ROT13 [M5.2]. It is therefore a 'rot Hering', or red herring [M5.3]. As additional hints it is red in colour [M5.4] and the Blackletter font is typical of older German printing [M5.5].

The number 18548518189147, which is indeed the product of two large primes, is nevertheless correctly decomposed as 18-5-4-8-5-18-18-9-14-7 [M6.1]. Converted into letters with A=1, B=2 etc., this yields RED HERRING [M6.2]. Needless to say, it was not necessary to factorise the number.

The treasure location is on the periphery of the grounds of the Wellcome Trust Genome Campus, a leading research centre in genomics, genetics and bioinformatics [M7].

The Dogg code and the shotgun code using the DNA fragments only cover a subset of the alphabet. The messages they encode are therefore examples of lipograms [M8.1], a form of which Perec was a leading exponent [M8.2]. An illustration of his artistry and skill in working within such rigid constraints is his book *La Disparition* (*A Void* in its British translation), which wholly lacks that non-consonantal symbol occurring 'twixt 'd' and 'f'.

Question 60 is this year's Pablo question [M9], replacing the traditional Sean Bean question as the fund of interesting information about Sean Bean has been exhausted.

## Bonuses

We have decided to award marks to solutions pointing out the following fortuitous connections. They are all pretty neat ideas that we wish our brains hadn't been too highly trained to think of, and which, if we had thought of them, we believe we would have tried to exploit.

- The 'Merry Christmas' message on the poster starts with a start codon (ATG) [B1] and consists of 42 bases [B2]
- The image replacing question 42 is an 'X'-ray [B3]
- The line-through-a-circle symbols on the jigsaw pieces could represent Meanders in the mathematical sense [B4]
- 42 is meandric number  $M_4$  [B5]
- The vessel Stad Amsterdam was designed by Dykstra Naval Architects [B6]

Sadly, the distance between the Glastonbury and Avebury bases appears to be slightly nearer 41 miles than 42.

## Poster and teaser video

The teaser video includes a variation on the opening lines of *The Hitchhiker's Guide to the Galaxy* [P1] and an animation of a digital watch loosely based on the Sinclair Black Watch [P2], in a style reminiscent of the 'book' segments from the TV series [P3].

The poster hints at the themes in various ways.

## Baubles

The baubles hang from a double helix using the same code as that for the DNA fragments in the hunt proper [P4.1]. The font of the letters of MERRY CHRISTMAS is called 'Codon' [P4.2].

## Four images top right

In reading order: Jiminy CRICKET [P5.1] minus ET [P5.2], giving CRICK [P5.3]; Benjamin FRANKLIN [P5.4]; the logo for the WATSON [P5.5] 'cognitive technology' by IBM, depicting 42 [P5.6] 'threads' of thought; WILKINS [P5.7] of Wilkins and Wontkins, puppets advertising Wilkins coffee.

The images thus give the names of the protagonists in the discovery of the structure of DNA [P5.8].

## Whale and bowl of petunias

Both these items materialise in a scene in *The Hitchhiker's Guide to the Galaxy* [P6] when the Infinite Improbability Drive is activated. The text in the thought bubbles is a slightly modified version of the original text.

## Columns of images bottom left

The images represent a journey, read from top to bottom in the left column and then in the right. The points visited are as follows.

### Left column

- Kings Place, London [P7.1]: London HQ of Logica (and latterly CGI), [P7.2] original sponsors of the treasure hunt
- *The Meeting Place*, St Pancras International station, London [P7.3]
- Mock-up of sign at Belgian border [P7.4]; 'Belgium' is censored because according to *The Hitchhiker's Guide to the Galaxy* it is the most unspeakably rude word in the universe [P7.5]
- HSL1/LGV1 line on the Eurostar route to Brussels [P7.6] at the Viaduc d'Arbre, near the town of Ath, viewed from the rue d'Ath [P7.7]; the coloured dots spell AAT in the colour code for the bases [P7.8] and Aat is the Flemish name for Ath [P7.9]
- Eurostar train on arrival at Bruxelles-Midi/Brussel-Zuid station [P7.10]
- Thalys train at Bruxelles-Midi/Brussel-Zuid station [P7.11]
- Thalys train and NS train meet at Antwerpen-Centraal station [P7.12]
- Clock at Antwerpen-Centraal station [P7.13]

### Right column

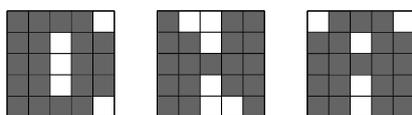
- Hyllit Hotel, Antwerp, Belgium [P7.14]
- Quellinstraat, Antwerp, Belgium [P7.15]
- Quinten Matsijslei, Antwerp, Belgium [P7.16]
- Stadspark by Quinten Matsijslei, Antwerp, Belgium [P7.17]
- St-Jozefkerk, Loosplaats, Antwerp, Belgium [P7.18]
- Van Eycklei and Charlottalei, Antwerp, Belgium [P7.19]
- Belgiëlei, Antwerp, Belgium [P7.20]

- Lange Leemstraat, Antwerp, Belgium [P7.21]
- Isabellalei, Antwerp, Belgium [P7.22]
- Haringrodestraat, Antwerp, Belgium [P7.23]

'Haringrodestraat' could be translated as 'Red Herring Street' [P7.24].

## Binary stream

The cubes by the 125 bits indicate that they are to be arranged into a 5-by-5-by-5 cube [P8.1]. If the '1' bits are considered opaque and the '0' bits transparent [P8.2], then the projections along the three axes [P8.3] (as hinted at by the flash of light) yield the letters D [P8.4], N [P8.5] and A [P8.6], abbreviation of both deoxyribonucleic acid as well as Douglas Noel Adams [P8.7].



## Treble clef and dots

The treble clef indicates that this is music [P9.1]; the dots are braille [P9.2]. Credit for correct transcription [P9.3]. The tune is the theme to the BBC show *The Generation Game* [P9.4], specifically the opening line 'Life... is the name of the game / And I wanna play the game with you' [P9.5], giving the theme of the hunt [P9.6]. We hope that hunters old enough to remember the original series found the hunt at least as entertaining as Bruce Forsyth. A possible transcription of the braille is shown here.



## Circular pattern

The pattern of blue and red dots says DON'T PANIC [P10] in a font similar to one of those used to provide the large friendly letters on the cover of the book in *The Hitchhiker's Guide to the Galaxy*.

## Fonts

The font used for 'Pablo's Armchair Treasure Hunt 19 December 2014' is Harlow [P11.1], used on some editions of the book of *The Hitchhiker's Guide to the Galaxy* [P11.2]; the font used for the text 'WWW.PABLOSATH.COM' is WhoopAss [P11.3], from the film version [P11.4].

## Hunters' tales



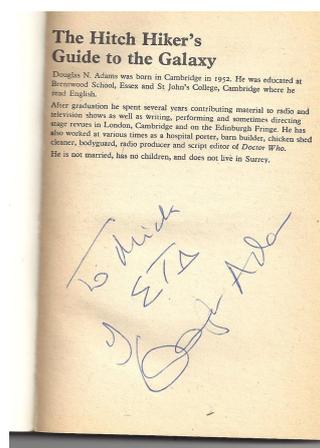
Many hunters sent in their tales of bravery, which was chiefly limited to negotiating level crossings in the absence of oncoming trains.



**Apopheniacs Anonymous** took a cautious approach:

Unexpectedly we found out that there was no bridge nor was there an underpass we had to walk across the railway track! Last year we were shot at and this year the setters are looking to get us run over by a speeding train! Fortunately we had a teenage girl with us who we bravely pushed out first across the tracks ...

The **BistromATHmaticians** proudly displayed the signed front matter from their copy of *The Hitchhiker's Guide to the Galaxy*:



**Bruce Hindsight** visited the treasure site well prepared:

Once the others arrived, we compared notes, looked around a bit and sat down at the corner of the field. Timothy was very pleased with himself for being the only frood among us who'd been hoopy enough to bring a towel... On seeing the Meander, whose profound mysteriousness we impressed on him, Colin had a brainwave which expressed itself in the form 'Then it isn't as simple as...'. At this point we realised that there were limits to our hoopiness: none of us had thought to bring the quiz answers. Colin, with a dodgy smartphone connection and battery threatening to run out at any moment, read the letter pairs out in order. As Timothy transcribed them, parts of the other message emerged.

The first part of the new directions ('south east one seven five paces') was clear with some interpolations... but clearly we had some errors somehow and were supposed to look under the BRIDGE. A concrete ledge made this possible if one was prepared to wade through a few inches of water. With one accord, Colin and Mark looked at Tim, who was no longer looking so pleased with himself for having remembered his towel.

**Dave Kee's** team made an unsuccessful trip to Great Shelford (at the south end of the DNA cyclepath):

So back to the Square and Compasses for a swift half in the hope of inspiration... I should have copied Arthur and Ford and had six pints and a packet of peanuts!

Perhaps we have to join the Masons to solve this. I'll roll up my trouser leg and see if someone hands me the secret of the holy grail.

This strategy proved successful, and the treasure was soon found. However:

At this point a man with a dog appeared from nowhere and asked what I was up to. He was a game keeper and did not like people disturbing the wildlife. Evidently I looked like I was up to no good! But he was highly entertained when I explained all about the treasure hunt, and agreed not to tell anyone about the box, at least until the hunt is over.

**Deep Thought** got their priorities right:

The friendly vicar was only too happy to show me the frescoes, but only after I'd found the treasure of course—a low numbered treasure ticket is more important than visiting an ancient artwork I'm afraid.

**Lady Strange and the Earl of Yarborough** were also cautious at the level crossing:

I carefully looked both ways before crossing. The path southeast is obvious... I carefully looked both ways again before crossing the... footbridge over the Cam. There's a big birdbox on a tree just south of the river, you can't miss it, so naturally I walked past it the first time... I met two dog walkers on the way, and wished them a good morning. The second asked me what I was looking for, as if he were fed up with treasure hunters cluttering up his footpath. I equivocated.



One member of their team, Barry Rigal, was inspired to compose a poem reminiscent of Georges Perec's 'threnodials', or isogrammatic poetry, and the so-called sestagrammatinas of Michelle Grangaud. The poem contains many anagrams of 'Arthur Dent' (can you find them all?):

I ranted thru the ATH  
 My hatred turned me scarlet red  
 I'm ardent, hurt and mad as hell  
 Stuck in the glue on each runt thread

Drat hunters, seekers, anagrammers,  
 Following the truant herd  
 The ball drops with an errant thud  
 I haven't solved a single word!

The **Psychological Eagles** visited at an auspicious time:

At about 10:42, 24th December, I left the house and made my way to the village of Ickleton... like a fool I had not taken a copy of Sarah's map, but had remembered the name Mill Lane, which I soon found, and walking to the end found the railway crossing... I came to the footbridge. Now it was here that I got a bit confused with the instructions and counted out 175 paces after the footbridge, all the while looking for a bird box in the trees through the low lying winter sun. Having reached the end of my count I searched around this area (sewage works, not quite up to my neck in it) and came up blank, so retraced my steps back to the footbridge. I noticed the bird box immediately as I now didn't have the sun glaring in my face, and couldn't believe I had missed it, because of its size.

**Team Norway** encountered some local fauna:

I was poking about behind these trees when I realised that someone was walking down the opposite side of the river. I wondered which way he would go, but of

course he turned onto the bridge towards me. So I had to say hello, and we ended up having a conversation on the bridge.

He was an old bloke—80, he told me—with a couple of dogs, and some sort of country accent. He first of all asked me if I had seen anything yet. I admitted that I hadn't (which was true!). He said he'd seen some bullfinches the other day. Not being a nature lover, I wouldn't recognise a bullfinch if it walked up and hit me in the face...

Then he started going on about how the 'sparras' were killing everything off. I was thinking 'Bloody hell! I know that's the Genome Institute over there—what sort of weird experiments are they doing if there are killer sparrows around?' But eventually I realised that he was talking about sparrow-hawks...

In the middle of this I noticed that a tree beside the bridge on the other side of the river had a bird box in it! But I had to be polite... I was begging to get away, and praying that no one else—local or treasure hunter—turned up.

**Team Poirot** had a brief moment of jubilation:

Is that a bird box I see above me? Do you know, I really think it is. And below the bird box... We stumbled upon this by accident, so were about to replace it until... we noticed a number of jigsaw pieces with numbers on. Excellent... we were first to the treasure! Then George pointed out the second digit...



Team Poirot's leader approaches the treasure

**Twelve Pack** encountered more than they bargained for:

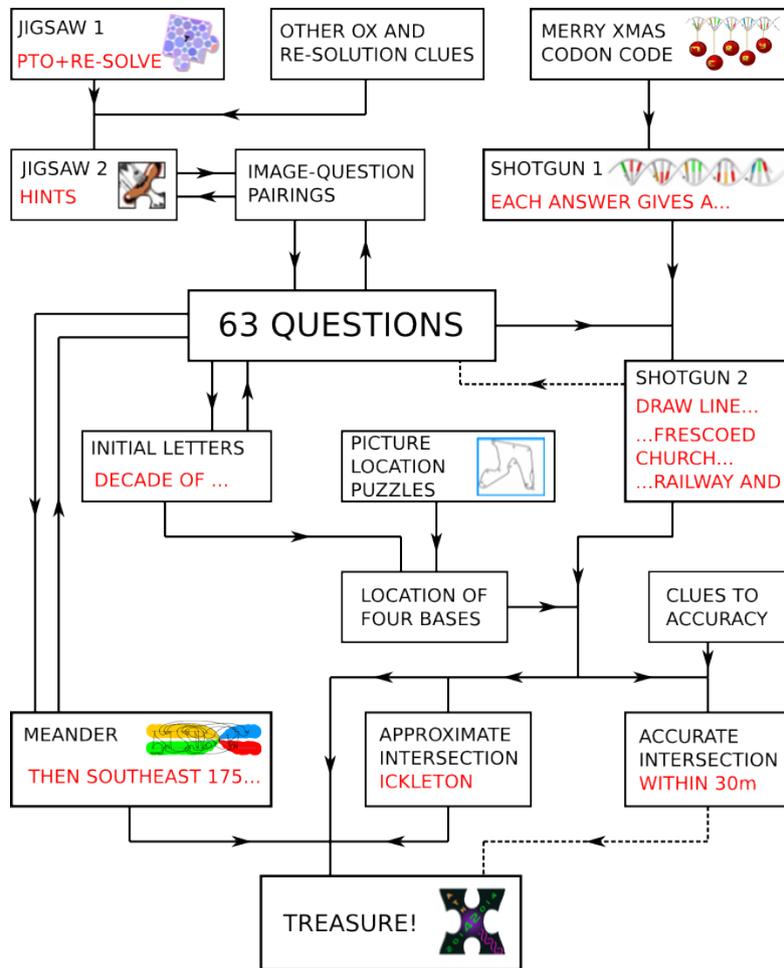
Our fearless leader, being the adventurous groovy go-getter that he is, battled... a ravenous bugblatter beast which some nasty Vogons hid inside what appeared to be an ordinary bird box. Luckily, he had his towel with him... and so ends our journey, here on the 42nd page of our submission. Where else would you expect to find our treasure ticket?

## Setters' notes

When designing the structure of the hunt, we wanted on the one hand to avoid hunters getting irredeemably stuck, but on the other hand not to make it too easy for a large portion of the hunt to be shortcut. Our attempt to square this circle involved suggesting the location of each base by several somewhat fuzzy clues: it would be quite an achievement to guess the location of a base on the basis of any single clue, but it probably wouldn't be necessary to use all of them. We also tried to make some of the puzzles interlock in such a way that solving one puzzle became easier as others were solved. For example, when hunters were left with just a few remaining awkward questions unanswered, they might at least know their corresponding vignettted images and letter pairs.

As it turned out, our detailed plans didn't always work in the way intended, and in one or two cases teams found ingenious ways to shortcut portions of the hunt despite our best efforts.

A possible flow of reasoning is depicted in the accompanying figure. The diagram only shows the main paths and does not include seasonal greetings, general thematic material, or of course the red herrings.



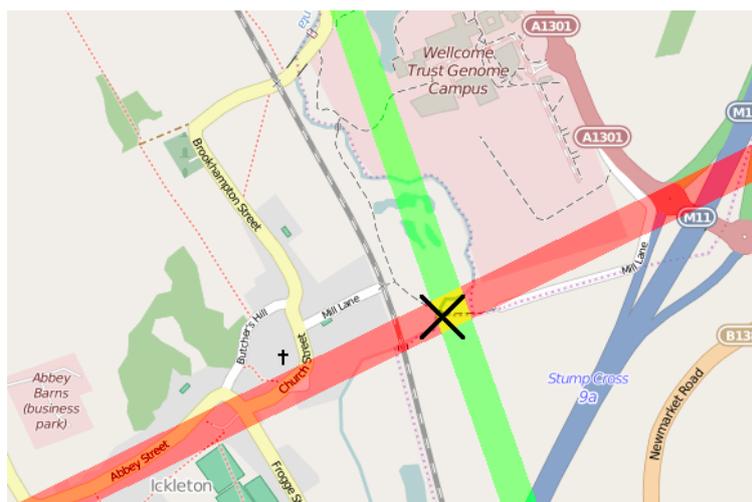
The idea for the DNA cube puzzle on the poster was ~~filched from~~ inspired by the illustration on the front cover of some editions of the book *Gödel, Escher, Bach: an Eternal Golden Braid* by Douglas Hofstadter, showing a three-dimensional solid whose projections along three perpendicular axes give the letters 'G', 'E' and 'B'.

When constructing the AVALON map puzzle (puzzle G1) we knew that 'Rue de Vogon' was a real street in Rizaucourt-Buchey because of on-line references to it and road signs visible on Google Street View; unfortunately, however, it appeared as 'Rue de Vognon' in OpenStreetMap, Google Maps and Bing Maps. It wasn't easy to find a suitable alternative thematic word (sadly no local council has been enlightened enough to name a road 'Vroomfondel Avenue'), and so it seemed that we might have to abandon the idea. More in hope than expectation one of us submitted a correction to OpenStreetMap. If the error was corrected there (and we gave a hint to use that site), then we felt hunters would have a reasonable chance of finding the right name despite it still being wrong on the other mapping sites. To our surprise, not only was the error corrected in OpenStreetMap within 24 hours, it was also corrected on the other sites in the course of the next few days! It would seem that Google and Bing track changes made to OpenStreetMap.

A similar fortuitously timely correction occurred in the case of the hymnboard puzzle. The list of contents for *The New Oxford Book of Carols* on the Oxford University Press website omitted a carol, thereby ruining the numbering: we contacted OUP and happily they obliged by fixing the problem in time for the start of the hunt. Incidentally, in the construction of that puzzle, one of the setters realised he had spent so long photoshopping in the numbers that it would have been several times quicker to visit the church, set up the desired numbers and take a new photograph.

A little before the hunt went live, we noticed that we'd accidentally used left-handed helixes for our DNA pictures, whereas real DNA is almost exclusively right-handed. Rather than redo them all, we decided we'd award a bonus mark to anyone who noticed (which appears to be no-one).

If it is assumed that the co-ordinates for the four bases given in the intersection construction above each have an error of up to 5 metres, then the resulting possible region of intersection can be plotted. This gives two rays, each of roughly 80m width, as illustrated by the accompanying map.



We apologise to hunters who spent excessive amounts of their Christmas holidays chasing red herrings, or who now have blisters from cutting up—or RSI from photoshopping—jigsaw puzzle pieces. It may be some small consolation to know that, besides the other travails, tribulations and toil involved in setting the hunt, we cut out a full set of double-sided pieces on three separate occasions. We also made around a dozen trips to the treasure site, one to Ath just to see what it was like, and two to Antwerp.

## Acknowledgements

We would like to thank everyone who took part, particularly those teams brave enough to let us (virtually) look over their shoulders while they solved the hunt. It was fascinating to follow their thought processes, their torments and their triumphs, and to watch a nail-bitingly close race to the treasure. We are also grateful to those who helped us during the setting process, in particular to Richard Tucker and Juliette Culver for their extensive playtesting and helpful feedback.

Thanks also to the authors—far too many to list—of all the pieces of open-source software we used to construct the hunt: Cairo, GCC, GIMP, Inkscape, L<sup>A</sup>T<sub>E</sub>X, Linux, Octave, PicoSAT, PMW and POV-Ray to name just a few.

And finally many thanks to all who took the time to write to us with their comments on the hunt. We hope you enjoyed solving it as much as we enjoyed setting it.