# Pablo's Armchair Treasure Hunt 2022 

Imitation Gamers

We are Imitation Gamers, a Cambridge-based team. This is our first year taking part in Pablo's ATH and it's clear that we didn't really know what we would be letting ourselves in for when we started four weeks ago. This (extremely long) document is our annotated solution covering the main hunt, CATastrophe, as well as any items that appeared on the website. At the end, we've also included some of our tales from the last four weeks.

## Teaser

The teaser image is referencing teletext, and the game Bamboozle (and host, Bamber Boozler).
The teaser includes various numbers:

## 252652326251825268

This says "not long now" if converted 1 -> A (etc) and then Caesar shifted by 11. The 11 is hinted by the month of November.
"Cold spells" is linked to the theme of witchcraft and the use of spells in Catastrophe "Eye on the cream" is linked to theme of cats
"Trace a path" is a hint for the "catscan" puzzle and overlaying the cats onto a map, as well as a referencing Mayor Robert Buckell's permabulation of the city bounds.

## Poster

The poster image ties in many of the themes in the hunt:

- DaphneHQ logo: a variant of the red "racetrack" nintendo logo
- Background: a reference to Nintendo World Championship 1990 box art
- Border: a reference to various CAPCOM games. In particular 'bad box art' Megaman
- "Daphne seal of quantity": Nintendo seal of quality
- Building and fire: A reference to fire at Godstow abbey
- Cat: Witchcraft but also an Alice cheshire cat reference.
- QR codes: a hint about the use of data matrices later in the hunt


## Catastrophe Game

## Spells

"Spell HELIUM" Levitation. Used to travel from shaft to caves
"Spell SOUTERRAINS" is the fast travel to entrance of caves from shaft
"Spell AMAZECAKEZ" is the fast travel from cave exit to cloisters.
"Spell BUCOLIA" is the fast-travel to outside of gate from cloisters.
"Spell SPELUNKLES" is the fast-travel to outside the wall monster cave.
"Spell RELIGIOSA" is the fast travel from gate to garderobe
"Spell SHAREWAREZ" at end of demo
"Spell ARBORETUMS" to go to the Coppice
"Spell FINALESTIA" to go to the Cabin
"Spell INCONCLUSIUM" to complete the game
"Spell REINCARNATIA" at end of game but with broomstick and hat
Within the game, casting spells is performed using the phrase "spellcasting ..." which is a reference to the TV programme Knightmare.

## Thematic links

The game contains a number of references towards the main themes of the hunt and tells the story of the Godstow witch (the disembodied voice in the game). The player character is Alice Liddell as well as various references to retro-computing, witchcraft and Jorge Luis Borges. The name of the game "CATastrophe" is a pun "Cat As Trophy" with the prize for getting to the end of the game being cat-shaped.

## Opening Area

## Starting Room:

GRAB POOL to get the FISH.

## Room with 6 walls (north of start location):

Wall 1: Robe with 3 pronged crown - ROYAL CAPE
Wall 2: GEMINI zodiac symbol
Wall 3: Scorpio, with an arrow pointing to ANTARES
Wall 4: Image of the ATLANTIC Ocean.
Wall 5: NACRA (NORTH AMERICAN CATAMARAN RACING ASSOCIATION)
Wall 6: Two LEOPARDS or CHEETAHS

Each of these represents a manufacturer of Catamarans (which is another reference to cats)

The fourth wall can be pushed ("break fourth wall") revealing a room containing HONEY

## Dark Corridor

You can get the scrap of paper by:

USE HONEY WITH HOLE
USE FISH WITH HOLE

The scrap of paper contains text in the Theban alphabet, which is thematically linked to witchcraft. On the walls of various rooms in this area are Theban letters which combine to form the spell HELIUM

## Tunnel

"They took me along a tunnel such as this, after my fate was sealed, but before it came to pass." A reference to the Godstow witch being abducted.

## Upstairs, room with CAT

You can ASK CAT ABOUT PABLO

DIG HOLE to reveal the shaft

## Shaft

SPELL HELIUM to leave the opening area and reach the CAVES

## Room with a chair

TAKE HAT,
WEAR HAT
TALK TO HAT

The hat is the Harry Potter sorting hat, the ceremony of which was filmed at Christ Church college, Oxford. So is linked both to witchcraft and also Lewis Carroll via the college.

The hat belongs to the witch and can be returned to her if worn when meeting the Oracle (along with the broomstick)

## Misty Room (Room with Ghost)

First Riddle: "I hover in the sky but have no wings. I cross oceans but cannot swim or float. I am deadly but everybody needs me. What am I?" ELECTRICITY.

Second Riddle: "I'm always on the move, but stay in one place. Sometimes I am quite small, and sometimes I stretch into the sky. But l'll always do what you want. What am I?" LIFT

ASK GHOST ABOUT PASSWORD
SAY ELECTRICITY
SAY LIFT

Once passed, this gives access to the brick chamber.

## Brick Chamber

## EXAMINE PAPER

"opera maleficorum sunt talia quod non possunt nisi opere daemonum fieri" is a quote from the Malleus Maleficarum (aka Hammer of Witches) which is thematically tied to witchcraft. The translation of the quote is "The deeds of witches are such that they cannot be done without the help of Devils."

Going up the ladder takes you to the CLOISTERS

## Caves

Here is our map of the caves:


The map spells out the letters BORGES, which is a link to Jorge Luis Borges, and his book Labyrinths (short story collection), which includes the Library of Babel. There is a Borges Labyrinth in Venice where the maze spells his name.

Within the caves we encounter SPHERICAL FRUIT which are a thematic link to the Library of Babel.
"It was misty the night they took me" - a reference to the Godstow witch being taken and burned at the stake.

## Cave with archway

We can also collect a stopped gold watch which is a thematic link to the white rabbit in Alice in Wonderland.

## Cave with Rock Formation

To get the stalactite:
PUSH STALACTITE
PULL STALACTITE

## Dead End

The old woman says "alios age incitatos, alios age rabidos." - which is the last line of Catullus 63 (another cat reference) It translates as "others drive thou in frenzy, others drive thou to madness." This is what the old crone at Godstow Abbey says in The Stripling Thames by Fred Thacker.

## Cave with a Stream

USE STALACTITE WITH BOULDER to divert stream and unlock the route north to the COUNTRYSIDE
"I once knew a street along which a stream ran that shone with such whiteness that they called it "White Street", or sometimes Canditch. Sadly my experiences there were somewhat darker." The Godstow witch was burned at the stake on White Street/Canditch

## Wall Monster Cave

The Wall Monster is another reference to TV show "Knightmare"

We think that the Wall Monster's speech references compass directions and provides a route (likely to be be used in the Coppice, although we were not able to follow the full route to find a new location)
"Er... hello" you say, tentatively.
"Hello. Why, you remind me of my old friend, Wu Cheng! He had a magnitude of 1.98!"
"What?"
"Yes he lived in a castle over puddles. He used to go by the name Serapias orientalis. But then of course he contracted Triatoma protracta, and died. Very sad."
"I'm... sorry to hear that."
"He was a great man. He carried on till dawn!""... that's nice..."
"Farewell to you and remember, next time, send serious couriers!"
"I... will... goodbye!"
You feel that this particular wall monster may have gone a little cave-crazy.
We interpreted this as:
Wu Cheng was author of Journey to the WEST
1.98 is the apparent magnitude of Polaris aka NORTH star
"Castle over puddles" is a reference to WESTern Super Mare
Serapias orientalis is EASTern Toungue Orchid
Triatoma protracta is the WESTern bloodsucking conenose
Carried on till dawn implies EAST
"send serious couriers!" - We couldn't map this to a direction
But this maps to a (partial) route of: W N W E W E

## Tunnel with Candle

The candle is an Alice reference to "she tried to fancy what the flame of a candle is like after the candle is blown out, for she could not remember ever having seen such a thing." as well as "six impossible things before breakfast"

## Hole

Go out, to access the CLOISTERS

## Cloisters

The cloisters are linked to Godstow Nunnery.

## Courtyard

The hedgehog curled into a tight ball is an alice link to the croquet balls

## South Cloister

We think the LACE is a thematic link to Ada Lovelace
"ahh, my sisters and I spent many happy hours beavering away on our lace here!" Godstow witch was allegedly a nun at the time of the reformation when the abbey was dissolved

## Misericord

The upside down pentagram is a link to witches.
"turned our service from the one who failed to protect us to His sworn enemy" - Is a reference to rumours that the Godstow witch now worshipped the devil

## Narthex

The stopped clock is another link to alice (and the stopped pocket watch)

The large door has five locks, without keyholes. Each key is unlocked by 'playing' the correct colours on the lectern with each colour corresponding to a note.

Mapping of colours to notes:
Yellow=C, Green=D, Blue=E, Indigo=F, Violet=G, Red=A, Orange=B

The pattern of notes A-G spells five phrases. Each is also clued by the pattern of dashes on the left pillar and corresponds to an item within the cloisters.

First line, first lock is I R Y B spells FACE (clock face in Narthex) Second line, second lock is I B B G ORV = FEED BAG (basket in kitchen)
Third line, fifth lock is $\mathrm{R} V \mathrm{BGOBBI}=$ AGED BEEF (steak in kitchen)
Fourth line, third lock is ORGYROORVB=BAD CABBAGE (rotten brassica in sacristy) Fifth line, fourth lock is G BIRYBGORVVRVB=DEFACED BAGGAGE (trunk in misericord)

Unlocking all five locks opens the door to the COUNTRYSIDE

## Kitchen

CLIMB FIREPLACE takes you to a secret passage to sacristy
In the image is a glass mirror, we think this is a reference to Alice's looking glass.

The CUP is a Starbucks cup. We think this is a reference to the Starbucks cup that made it's way into a Game of Thrones scene,

The JARS are another real-world reference but we couldn't work out exactly what. Possibly to Java .jar files.

The FISH is a red herring.
The STEAK is both "AGED BEEF" but also a computing reference to DEADBEEF in hex.
"Please not the fire again!" - a reference to the Godstow witch being burned at the stake.

## Sacristy

The King is a reference to Henry II visiting Rosamund at Godstow.

The ROTTEN BRASSICA is a BAD CABBAGE, but is also potentially a link to Charles BABBAGE (especially when linked to Ada LoveLACE)

We think the SACRISTY is pictured in the Catastrophe Game cover art.

## Countryside

The area of the countryside represents Godstow and the surrounding woods, in particular the area where Lewis Carroll and Alice had their picnic (sunny field).

## Countryside:

We waited under the shade of this tower for days" a reference to the suppression of the abbey in 1539 under the Second Act of Dissolution.

## Herb shop:

## TAKE TWINE

The herbalist only accepts orders by latin name.

You can "BUY Stellaria Holostea" (greater stitchwort)
You can "BUY Geum Urbanum" (wood avens)
You can "BUY Meconopsis Cambrica" (welsh poppy)
You can "BUY Achillea millefolium" (yarrow)
You can also buy the thematically linked "nepeta cataria" (common CATmint)
Sadly you can't buy "Aristolochia Clematitus" (birthwort) which is thematically linked to Godstow abbey

## Edge of the woods

You meet a crow here, we think this is linked to Stephen Crow, author of Starquake for spectrum and BBC Micro, which features in the Catscan puzzle.

## Field

The masked figure is dressed as a cat.

## TALK TO MASKED FIGURE

ASK MASKED FIGURE ABOUT ORACLE
ASK MASKED FIGURE ABOUT CIRCLE ASK MASKED FIGURE ABOUT DOORWAY

She tells us to visit the oracle. To do this, we need to make a potion of 5 herbs which must be combined in a large pot. Ingredients:

1. Lotus flower (she has this and gives it to us by talking to her)
2. White star-shaped flower with seeds that make a popping sound as they ripen. This will protect you as you travel (Greater Stitchwort)
3. Yellow flower from the land of dragons. It will connect you to the spirit world. But don't bring it inside your house (Welsh Poppy)
4. Yellow flower near the woods with five petals and burrs that catch rabbits It also will protect you from any evil spirits that you may encounter (Wood avens)
5. Small white flowers with sweet scent, to give second sight. My friend Elspeth used these many times Elspeth = Elspeth Reoch, (Yarrow)

The herbs can be bought from the herb shop and then mixed using the cauldron in the kitchen inside the cloisters.

USE LOTUS FLOWER WITH CAULDRON
You drop the Lotus flower into the cauldron.

USE GREATER STITCHWORT WITH CAULDRON
You place the plant in the cauldron.

USE WELSH POPPY WITH CAULDRON
You place the plant in the cauldron.

USE WOOD AVENS WITH CAULDRON
You place the plant in the cauldron.

USE YARROW WITH CAULDRON
You place the plant in the cauldron.

## USE CAULDRON

You drink the contents of the cauldron, which has mixed to form a strange smelling potion.

After making the potion you can pass through the circle.

## Path through the dark woods

The Ghostly doctor is George Owen. He converted Godstow Abbey into Godstow House for himself. He was one of Henry VIII's physicians. His family lost the house in the Civil War in which it was destroyed.

## Deep in the forest

"one whom you may have already met" - a reference to the old crone of Fred Thacker
"though I waited a life-time or more..." is a reference to the fact that the timeline for Godstow witch doesn't quite line up i.e. if she was a former nun there would not have been enough time for the Abbey to fall into disrepair.

## Circle

ENTER CIRCLE to get to the COPPICE. This marks the end of the demo version of the game.

Here the Godstow witch tells you about the time when she would block the road to demand a toll. Although the primary source is the Godstow witch, it's a similar story to Wolvercote independence day as featured in the magazine.

## Coppice

## The Dead Tree

The branches of the dead tree indicate the correct path through the coppice. From top to bottom they are: W N N E W E and then keep going north to get to the CABIN

Within the coppice you can pick up a STICK and TWIGS. These can be combined with TWINE (from herbalist) to create a broomstick.

USE TWIGS WITH TWINE
USE TWIGS WITH STICK

During this section the voice tells you the final parts of the Godstow witch story. The witch is cast out, lives within the Godstow Abbey ruins and then is caught, bound and dragged to Oxford to be burned at the stake at Broad Street. The story ends with the witch turning the onlookers into geese. The broomstick is a reference to part of the story, that the broomstick now found at the White Hart pub belonged to the Godstow witch.."

## Cabin

Within the Cabin you meet the Oracle, who is the sister of the Godstow Witch. If you have the BROOMSTICK and the HAT you give them to the witch.

The Oracle (a reference to the software company?) asks you to complete a puzzle and rearrange red and green cats. You can solve this with the following movements.

MOVE 7-2
MOVE 1-4-7
MOVE 3-6-1-4
MOVE 5-8-3-6-1
MOVE 2-5-8-3
MOVE 7-2-5
MOVE 4-7

## Conclusion

When standing in front of the mirror you can see that you are Alice. After stepping through the mirror you are back on your godstow picnic. We thought that Charles Dodgson looked a bit suspiciously like Seb Bacon's twitter picture. Definitely a thematic link.

There is a small prize hidden below a tree trunk between the Abbey Ruins and the river. This is the Game prize.

During the end credits, we think the flickering letters are a thematic link to Borges's Library of Babel (both the book and website)

## Computering Magazine

## Front Cover

We weren't able to get any useful information from the front cover! We know the cover image was generated using DALL-E, as the extracted version contains the DALL-E watermark, and we note various numbers (one, one, five) in the blurb text. The overall layout of the magazine is very similar to Atari User (for example) or Micro User.

## Staff

The staff page consists of a series of anagrams. Each can be rearranged to form a witch, either historical or fictional. The solutions are:

| Name in puzzle | Anagram |
| :--- | :--- |
| Rose Heathpit | Sophie Hatter |
| Molly Red | Moll Dyer |
| Simon H. H. Potter | Mother Shipton |
| Erich voon Mainstein | $\underline{\text { Catherine Monvoisin }}$ |
| Ben G. Marie | Merga Bien |
| Dalton Tristamme | Magrat Garlick Matsdotter |
| Lick A Ragtag | $\underline{\text { Wicked Witch of the East }}$ |
| Stew Woad (Chief Thicket) | $\underline{\text { Morgan Le Fay }}$ |
| Moray Flange |  |

The layout of the sidebar matches that of Atari User October 1987 (with Dr Boris on the cover). The riddle "Why is a literate child like a smoked fish?" is a reference to Lewis Carroll's famous unanswerable riddle "Why is a raven like a writing desk?" Since genuine answers have since been proposed for Lewis Carroll's riddle we suggest the following answer for DaphneHQ's:
"Because one is a 'read nipper', while the other is a 'red kipper'?"
A red kipper is, of course, also a red herring!

## News

## Hanoi

The image is a picture of the Hanoi skyline, which has been augmented by a set of numbered Hanoi disks on the left-most skyscraper, representing the initial state for a Tower of Hanoi problem. The skyscrapers are a pun on "The towers of hanoi". The yellow $L$ in "latest' is a hint to apply a Hanoi-based walk to the Game Registration grid, starting at the yellow letter L, hinted at by solving the crossword. The yellow $L$ is also similar to the Logica $L$, used in previous ATHs.

The towers are labelled "NEWS" with discs 2,3,4,5 starting in the "N" column and the objective is to move them all to the " S " column. Start at the yellow L , and then for each move, the distance moved in the grid is the number of the disc that is moved and the direction in the grid is the direction for the column that the disc moves to. It spells LOOK INSIDE STONE. (With the final move corresponding to a Y, which we do not include in the message)

| N | E | W | S |
| :---: | :---: | :---: | :---: |
| 2345 | . | . | . |
| 345 | 2 | . | . |
| 45 | 2 | . | 3 |
| 45 | . | . | 23 |
| 5 | 4 | . | 23 |
| 25 | 4 | . | 3 |
| 25 | 34 | . | . |
| 5 | 234 | - | - |
| . | 234 | . | 5 |
| . | 34 | . | 25 |
| 3 | 4 | . | 25 |
| 23 | 4 | . | 5 |
| 23 | . | . | 45 |
| 3 | 2 | - | 45 |
| . | 2 | . | 345 |
| . | . | . | 2345 |

Here is the Hanoi route in the decoder grid:


Velma to go public
"Velma Inc" is a reference to Velma from Scooby Doo (as is Daphne)
"Claiming a refund from Great Western Trains" a reference to Oxford and the GWT train station in 1886.

The Bellman, Baker, Beaver, Broker and the Bandersnatch are all references to Lewis Carroll's "The Hunting of the Snark"

## Drama at the computing Awards

The picture is of "Emile Baudot", inventor of the Baudot code. This is a hint to use Baudot / ITA to decode the punched tape. The picture also has a cat emoji superimposed which is a hint that this ties into the solution to the Quick Review's puzzle i.e. you need to interpret the punched tape as a turing machine. The CEO's name is needs to be decoded via the punched tape turing machine (see punched tape section for details)

The awards are the 37 th. Since this is 1987, this is a reference to the first electronic computer Z4, created in Japan by Hideo Yamashita in 1950.
"Spectre" relates to the other theme of witchcraft
"Collapsing into the mud". We think this is a reference to the Buckel's perambulation and the various times the group fell into the mud then!

## Fundraiser

This is a reference to when Wolvercote declared independence in 1987 to raise money for charity. "Mad as Hatters" is an Alice reference. "Mud bespattered" is another reference to the Buckell's perambulation. Wolvercote is adjacent to the prize location of Godstow and we think the various references to borders are hints towards the Buckell's perambulation. Note that the 1987 date matches that of the magazine.

## TV Review - Bandersnatch

A reference to Black Mirror - Bandersnatch by Charlie Brooker, as well as a reference to the Bandersnatch appearing in 'Hunting of the Snark' and 'Jabberwocky' by Lewis Carroll. Fun fact: the era-approprate computers used in Bandersnatch were supplied by the Cambridge Museum of Computing History. This is home turf for the imitation gamers and we did some initial reconnaissance there. This also references the unrealised game by Imagine Software.

## Page "numbers"

Various pages in the magazine have a number which is in Cistercian numerals. This was hinted on social media by the PabloATH twitter account "liking" a tweet which referenced them. There is a lot of information about Cistercian numerals in "The Ciphers of the Monks: A Forgotten Number-notation of the Middle Ages"

Each image contains four characters, with the top two and bottom two each translating to a separate number. The left character contains the information about the "Thousands" (as indicated by the backwards L shape wrapping around the numeral, which means multiply by 1000) while the right character contains the smaller digits.
E.g. on page 2:


The characters can be translated as follows (with "page" referring to the PDF page number)

Page 2: [2796202, 2867275]
Page 3: [3561462, 3427039]
Page 4: [2140892, 3387393]
Page 5: [2607978, 2284899]
Page 7: [2925126, 4054607]
Page 8: [2448666, 3717371]
Page 9: [3987216, 2591929]
Page 11: [4109578, 3169373]
Page 12: [3606546, 3370101]
Page 13: [3340808, 3183359]
Page 14: [2318982, 4194303]

Converting to binary and placing the rows in PDF page order gives us the following DataMatrix code:


Which decodes to $\mathbf{v} \mathbf{I 2 1}$. (See data matrix section for continued discussion)

## Esoteric Programming

The "program" is an 11x8 rectangle of characters. Interpreting these characters as encoded Braille using the Braille ASCII encoding yields the following pattern with black representing the locations of dots. The character boundaries are shown in red.


This is a data matrix that decodes to wall2.

Use of Braille is hinted at by "We are feeling it may be difficult to understand!".


#### Abstract

AI ART The first picture is Gravel Pit on Shotover Hill, near Oxford by William Turner (1789-1862), c. 1818, from Ashmolean Museum, Oxford. 'Win art prizes' is a reference to the Turner prize, and 'help talentless game designers' is a reference to the use of DALL-E in both the magazine and 'CATastrophe'.

The second picture is Newbridge, west Oxfordshire. This is the oldest (or second oldest) crossing over the Thames. We think that "Futurists" is hinting at the age of the bridge.

Both pictures hint at Oxford (and one is a painting and one a photograph). Together they hint at 'Pitt Rivers' and the link to the Edith puzzle. The code around the outside is a series of triplets: These can be combined with the objects in the Edith puzzle, by indexing ("Object number", "description word number", "letter") to yield the following message: "Follow Buckells peramBulation starting witH jingjing stoNe and count SikS markers deosil then follow ditch South"


See 'Treasure location' discussion for the interpretation of this message.

## Punched Tape fragments

The fragments of tape are 5 -track tapes. The tapes can be reconstructed by looking at the markings at the edges to give a complete tape, we also confirmed this by extracting the complete tape image from the PDF:


The BUN written on the tape at the start is a hint for the correct decoding. The tape format is ITA2, which is hinted by the picture of Emile Baudot as the CEO.

The total sequence decodes as follows. CATS is present as a thematic easter egg.
BUNL8ACUIR10ABOBR16.AFLR6BBGAL10ACZGR11CBWDLCCPEL5CCEGR4CALRR4A-LBR6C CTRL9ACJDL5BANHL4CATSL14BCVUL7CAUER8AAGYR12B

This sequence can be split up into groups of form $X X X$ (L|R) NUMBER $X$ giving this table. We interpret each of these groups as a row in a Turing-like Machine state table, like so:

| Current State | Read Symbol | Write Symbol | Direction | Distance | New State |
| :---: | :---: | :---: | :---: | :---: | :---: |
| B | U | N | L | 8 | A |
| C | U | 1 | R | 10 | A |
| B | 0 | B | R | 16 | . |
| A | F | L | R | 6 | B |
| B | G | A | L | 10 | A |
| C | Z | G | R | 11 | C |
| B | W | D | L |  | C |
| C | P | E | L | 5 | C |
| C | E | G | R | 4 | C |
| A | L | R | R | 4 | A |
| - | L | B | R | 6 | C |
| C | T | R | L | 9 | A |
| C | J | D | L | 5 | B |
| A | N | H | L | 4 | C |
| A | T | S | L | 14 | B |
| C | V | U | L | 7 | C |
| A | U | E | R | 8 | A |
| A | G | Y | R | 12 | B |

The use of a Turing Machine is hinted by the answer MATHISON MACHINE as the solution to the quick reviews puzzle and the cat emoji picture on Baudot's face. Mathison is Alan Turing's middle name.

The machine has a current state, which starts at "-", and is given some initial tape and start location. It then executes as follows:

1. Reads a symbol from the tape and finds the row in the table which matches "read symbol" and "current state". It's an error if no such symbol is found.
2. Writes the "write symbol" to the tape in place of the one it read
3. Moves either left or right along the tape according to the direction and distance.
4. Sets the current state to "new state"
5. If it reaches state "." it terminates. Otherwise, repeat from step 1.

The missing distance is interpreted as a 1.

Running this machine with the initial tape set to the DaphneHQ CEO name OZLFUWEUVUJPTGTN and with the initial location the "L", the program runs and successfully terminates. The resulting tape reads BY BRIDGE UNDER ASH which is a location hint for the main treasure.

## Secret Message Decoder

When the code is copied and pasted various lower case letters are revealed:
"We recommend pasting into online emulator at bbcmicdotro" i.e. https://bbcmic.ro/

This is important to ensure that the random number generator works correctly. The decoder will only usefully decode numbers with a specific format: 5 digits, first 3 digits $<=100$. The initial default code in the script decodes to spell "CAT" while the example given decodes as "HOUSE OF GOD". This is a reference to Godstow House.

The programme data contains numerous helpful hints (and red herrings). The ones we found most interesting were "MUNGOJERRY" and "POSSUM" which are hints about the cat names in the word search being from T. S. Eliot's Old Possum's Book of Practical Cats. The Lewis Carroll cipher's MATRIX and TELEGRAPH are also present which are clues to the use of DataMatrices and Telegraph codes for other puzzles. BORGES, RED and HEXAGON are also present as extra hints towards the Borges Bonus prize.

The decoder data is combined with the Battleships solution, and also the answer machine message from solving 'Which is greater?'. See those sections for the respective solutions.

## Catscan Game Walkthrough

The background to the game is the game map of 'Starquake', written by Steven Crow for the spectrum and later ported to the BBC Micro in 1987 (same as the magazine year). We noted that the map colours did not directly translate to published versions of the map for different systems. However we were not able to establish whether this was a code, or simply that the map came from a slightly different game version. (We have assumed the latter)

We believe the photos are all taken in the area of Binsey Lane, and that the arrows are arranged in the right location relative to each other. The cat sign locations can be verified, along with some of the locations (e.g. the distinctive red gate and wall). Lining up these known locations on the map gives:


The 'plus' corresponds to St Frideswide's Church.
The photos (and instruction to start from the bottom) direct the user from St Frideswide's church, up Binsey lane and then either left up to St Margaret of Antioch's church, home of the treacle well (and inspiration for the treacle well in Alice) or right past the Perch up to Binsey. This latter route leads to the main treasure location and is also directed by other clues as well as the poem. This is the Feline path!

Note that one of the signs is for the cat "Spokes", who sadly went missing last year.

## Brian's Computer Systems

Brian's Computer Systems (or BCS) is a reference to the British computing society. Each item has a price that can be interpreted as a year. The years correspond to founding dates of Oxford University colleges. This is hinted by "Est 1980". Almost all of the items are genuine items that are available for the BBC Micro, most of which can be found in the Museum of Computing History collection. One exception is "The Game of Logic", which is a book by Lewis Carroll. The actual software is "Games of logic". The background is an inverted version of the DaphneHQ game covers but also references ads for 'Twilstar Computers LTD' as does the slogan:


Each college can be mapped to a letter by using college -> letters from the quiz to spell out the instruction:

## PUT ARROW MATRIX UNDER WOOD TOY TO MAKE WALK ON LETTER MATRIX AND START MOVES ON DARK BLUE E

(See Actual Reality Games for continued discussion of this clue)

| Column | Item | Price / <br> Year | Oxford College | Quiz <br> Code |
| :---: | :---: | :---: | :---: | :---: |
| Accessories | Z80 2nd Processor | 1517 | Corpus Christi | P |
| Accessories | 6502 2nd Processor | 1546 | Christ Church | U |
| Accessories | IEEE Interface | 1264 | Merton | T |
| Accessories | Bit Stick | 1509 | Brasenose | A |
| Accessories | Teletext Receiver | 1326 | Oriel | R |
| Accessories | Quality Digital Recorder | 1326 | Oriel | R |
| Accessories | Quickshot II Joystick | 1990 | Kellogg | 0 |
| Accessories | Soft Dust Cover 'B' \& Electron | 1379 | New | W |
| Accessories | Hard (Fibre Glass) Dust Cover | 2008 | Green Templeton | M |
| Accessories | Printer Cover | 1509 | Brasenose | A |
| Accessories | Light Pen with software | 1264 | Merton | T |
| Accessories | Monitor Plinth | 1326 | Oriel | R |
| Accessories | Sideways ROM Board | 1962 | Linacre | I |
| Accessories | Disk Storage Box (50) | 1314 | Exeter | X |
| Accessories | Disk Storage Box (85) | 1546 | Christ Church | U |
| Accessories | BBC Key Function Key Mask | 1427 | Lincoln | N |
| Accessories | Printer Lead (parallel) | 1458 | Magdalen | D |
| Accessories | Printer Lead (serial) | 1282 | Hertford | E |


| Accessories | Cassette Lead | 1326 | Oriel | R |
| :---: | :---: | :---: | :---: | :---: |
| ROMs/Utilities | Wordwise | 1379 | New | W |
| ROMs/Utilities | Wordwise Plus | 1990 | Kellogg | 0 |
| ROMs/Utilities | Disk Doctor | 1990 | Kellogg | 0 |
| ROMs/Utilities | Printmaster | 1458 | Magdalen | D |
| ROMs/Utilities | Graphics | 1264 | Merton | T |
| ROMs/Utilities | Caretaker | 1990 | Kellogg | 0 |
| ROMs/Utilities | Termi | 1878 | Lady Margaret Hall | Y |
| ROMs/Utilities | Communicator | 1264 | Merton | T |
| ROMs/Utilities | Toolkit | 1990 | Kellogg | 0 |
| ROMs/Utilities | Exmon | 2008 | Green Templeton | M |
| ROMs/Utilities | Enigma! | 1509 | Brasenose | A |
| ROMs/Utilities | Masterfile II | 1870 | Keble | K |
| ROMs/Utilities | Help | 1282 | Hertford | E |
| ROMs/Utilities | Sleuth | 1379 | New | W |
| ROMs/Utilities | Spellcheck | 1509 | Brasenose | A |
| ROMs/Utilities | Hershey Characters | 1624 | Pembroke | L |
| ROMs/Utilities | Ade | 1870 | Keble | K |
| ROMs/Utilities | Logo (LCSI) | 1990 | Kellogg | 0 |
| ROMs/Utilities | BBC Ultracalc | 1427 | Lincoln | N |
| ROMs/Utilities | BBC Beyond BASIC | 1624 | Pembroke | L |
| ROMs/Utilities | BBC Typing Tutor | 1282 | Hertford | E |
| Top Games | Elite Cassette | 1264 | Merton | T |
| Top Games | Elite Disk | 1264 | Merton | T |
| Top Games | Aviator Cassette | 1282 | Hertford | E |
| Top Games | Aviator Disk | 1326 | Oriel | R |
| Top Games | Snooker Cassette | 2008 | Green Templeton | M |
| Top Games | Snooker Disk | 1509 | Brasenose | A |
| Top Games | 3D Grand Prix | 1264 | Merton | T |
| Top Games | Ghost Busters | 1326 | Oriel | R |
| Top Games | Jet Set Willy | 1962 | Linacre | 1 |
| Top Games | Repton | 1314 | Exeter | X |
| Top Games | Frak | 1509 | Brasenose | A |
| Top Games | Elixir | 1427 | Lincoln | N |
| Top Games | Imogen | 1458 | Magdalen | D |
| Top Games | Scrabble | 1886 | Mansfield | S |
| Top Games | Peeko Computer | 1264 | Merton | T |
| Top Games | Word Hunt | 1509 | Brasenose | A |
| Top Games | Word Sequencing | 1326 | Oriel | R |


| Top Games | Chemical Analysis | 1264 | Merton | T |
| :--- | :--- | ---: | :--- | :--- |
| Top Games | Chemical Simulations | 2008 | Green Templeton | M |
| Top Games | Jars | 1990 | Kellogg | O |
| Top Games | Temperature Control | 1879 | Somerville | V |
| Top Games | The Examiner | 1282 | Hertford | E |
| Top Games | The Game of Logic | 1886 | Mansfield | S |
| Floppy Disk | $8^{\prime \prime} \times 10$ | 1990 | Kellogg | O |
| Floppy Disk | $51 / 4^{\prime \prime} \times 10$ | 1427 | Lincoln | N |
| Floppy Disk | $31 / 2^{\prime \prime} \times 10$ | 1458 | Magdalen | D |
| Floppy Disk | $2 " \times 10$ | 1309 | Brasenose | A |
| Floppy Disk | Zip $\times 10$ | Oriel | R |  |
| Floppy Disk | $8^{\prime \prime} \times 20$ | 1870 | Keble | K |
| Floppy Disk | $51 / 4^{\prime \prime} \times 20$ | 1263 | Balliol | B |
| Floppy Disk | $31 / 2^{\prime \prime} \times 20$ | 1624 | Pembroke | L |
| Floppy Disk | $2 " \times 20$ | 1546 | Christ Church | U |
| Floppy Disk | Zip x20 | 1282 | Hertford | E |
| Floppy Disk | P\&P | 1282 | Hertford | E |

## Arrow

This puzzle is closely tied with the 'Dad's Puzzler' shown in "Actual reality games". (See that section for the solution). The quote "if I have seen further, it is by standing on the shoulders of giants." is by Isaac Newton. We think this is a clue that the solution to Dad's Puzzler, should use the solutions proposed by Martin Gardner, rather than be reinvented ourselves. The advert image is originally from this campaign for the PDP8e, with the leg replaced by that of this cat.

shutterstock.com $\cdot 297246275$

This can also be linked to various Oxfordshire 'giant cat' stories, such as the Beast of Burford. Swindon, UK is the home of the British Computer Society. We noted that there was a version of 'Tower of Hanoi’ made for the PDP8e.

## Battleship Down

The 'Battleship Down' map is tied to various other puzzles. These include the secret decoder grid and the data matrices. However, the first encounter with Battleship Down is likely to be the clue EACH POINT ON THE BATTLESHIP MAP IS AN OXFORD COLLEGE obtained by combining the Arrow matrix with the Dad's Puzzler solution.

Once the map is overlaid onto a map of Oxford, it can be seen that each red dot corresponds to a college porter's lodge, while the optimal solution traces out a path that intersects with a series of colleges (a porter's lodge is not always in exactly the same square as the center of the college itself). This sequence can be transformed into letters using the college -> letter mappings from the quiz to spell out:

## MAKE OXON SCARVES WITH HUE TABLE

## Battleship map overlaid with Oxford



Solution:

| Coordinates | College Number | Colleges | Letters |
| :---: | :---: | :---: | :---: |
| D11 | 9 | Green Templeton | M |
| K3 | 4 | Brasenose | A |
| 19 | 13 | Keble | K |
| D12 | 27 | St Annes | E |
| D16 | 33 | St Hughs | 0 |
| 14 | 8 | Exeter | X |
| M3 | 39 | University | 0 |
| J3 | 17 | Lincoln | N |
| M8 | 19 | Mansfield | S |
| C3 | 22 | Nuffield | C |
| S7 | 29 | St Catherines | A |
| L2 | 23 | Oriel | R |
| E9 | 37 | Somerville | V |
| G6 | 34 | St Johns | E |
| M8 | 19 | Mansfield | S |
| M5 | 21 | New | W |
| 09 | 16 | Linacre | 1 |
| M2 | 20 | Merton | T |
| O3 | 31 | St Edmund | H |
| M6 | 10 | Harris Manchester | H |
| 11 | 6 | Christ Church | U |
| F3 | 35 | St Peters | E |
| M2 | 20 | Merton | T |
| K6 | 40 | Wadham | A |
| H5 | 2 | Balliol | B |
| F7 | 30 | St Cross | L |
| J20 | 41 | Wolfson | E |

Once the instructions have been followed (see Game Registration section) a new message is obtained:

## "BLEND MAP AND DATA WITH ROSE ON CHRIST AND JACK ON ST JOHN AND REAPPLY COORDS"

This is an indication to combine the Battleship map with the Secret Decoder words by aligning Christ Church with the word ROSE, and St John's college with the word JACK.


The battleship solution then needs to be followed, to spell out a sequence of words. Where ambiguous, the red dot in each square indicates which word to select.

BEGINNING AT PATRON SAINT FOLLOW FELINES TO HOSTELRY AND THENCE PASS OUTSIDE ALONGSIDE JACK AND LOCK PROCEED TO HOUSE WHERE ROSE LIES TO SEARCH OUT CORNER BENCHMARK

Our interpretation:
PATRON SAINT = St Frideswide (patron saint of Oxford)
FELINES = the cats in catscan, I.e. follow Binsey lane
HOSTELRY = the Perch, on Binsey lane
JACK = Black Jack's Hole (upstream of the Perch)
LOCK = Godstow lock (upstream of Black Jack's Hole)
ROSE = Rosamund Clifford aka 'Rose of the World'
HOUSE WHERE ROSE LIES = Godstow Abbey
CORNER BENCHMARK refers to a surveying benchmark, which is on the corner of Godstow Abbey ruins (See treasure location section for exact location and picture)

The final use of this grid relates to the areas marked out by the four players. These correspond to error regions in the four Data Matrices. See Data Matrix section for more details.

The Battleship Down instructions contain some additional thematic hints. The four character names Louis, Thomas, Bernard and Tokuhiro are directly tied to the associated puzzles (see data matrix section for the links). The referencing to cheering is tied to this being the final puzzle to locate the bonus treasure, while 'hissing' is a link to the cat theme. We also thought that 'Battleship Down' might be a reference to the book 'Watership Down'. The author, Richard Adams, died in Oxford. We think Really Good Software (RGS) is possibly a link to the Royal Geographical Society and that the references to Islands or Lakes is due to the existence of both an 'Oxford Island' and 'Oxford Lake'. Battleship may also be a reference to the BBC Micro game 'Bismark, death of a battleship' which was released in 1987, the same year as the magazine

## Actual Reality Games / Dad's Puzzler

The game referenced here is called 'Dad's Puzzler', which was a popular puzzle in the first half of the 20th Century. The version presented here has a slightly different objective to the classic version as the goal is to move the large square to the top right corner, rather than the bottom left. This puzzle was written about in a noted Scientific American article by Martin Gardner called "The hypnotic fascination of sliding-block puzzles" which contains solutions to each of the corners. We think the reference to standing on the shoulders of giants is telling us to use his 27 step solution here. Martin Gardner is also known for popularizing Lewis Carroll's contributions to mathematics, particularly in the article 'Logic Machines and Diagrams'. "Actual Reality" is a play on "Virtual Reality".

This puzzle is closely linked to the Arrow's advert above, which is hinted by the faint rectangle in the Arrow matrix which corresponds to the initial starting gap in the block puzzle. A more explicit instruction on what to do with this puzzle is found by finding the hint in Brian's Computer Systems.

## PUT ARROW MATRIX UNDER WOOD TOY TO MAKE WALK ON LETTER MATRIX AND START MOVES ON DARK BLUE E.

These instructions are followed fairly literally. The Block Puzzle is placed on the Arrow Matrix. Each arrow contains a direction, and then either 2 or 3 steps to move.

First, we follow the two arrows that are uncovered, starting from the yellow $E$ in the game registration grid.

The block puzzle is then solved via the 27 step solution. Each arrow that becomes uncovered during a block puzzle move (including the case where an arrow is covered then uncovered within the move as a piece slides over the square) is played on the game registration grid.

In cases where two arrows are uncovered simultaneously and for the initially uncovered arrows, the moves are played in order left then right, up then down.

We record each letter we visit (including the initial $E$ ) and get:

## EACH POINT ON THE BATTLESHIP MAP IS AN OXFORD COLLEGE

This clue is discussed further in the Battleship Down section.
The path taken in the grid is shown in red here:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | E | E |  | N | N |  |  |  | N | R |  |  |
|  |  | H |  |  | EL | L L | Y | L 0 | 0 R | 8 ${ }^{\text {U }}$ | M ${ }^{\text {d }}$ | TU | 0 |  |  |  |
|  |  |  |  |  |  | K |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | H | H | Z | ZS | H |  |  |  |  |  |  |
|  |  |  |  |  | f | A |  |  | L 0 | - ${ }^{\text {d }}$ | E |  | H | S |  |  |
|  | U |  |  |  |  |  | I | E X | $\times$ | T C |  |  | R | 00 |  |  |
|  |  |  |  |  | ME | E T | * | L F | F M | 1 | M H | H ${ }^{\text {P }}$ | P |  |  |  |
|  |  |  |  |  |  | s | 6 | I 1 | T |  |  | 0 S |  |  |  |  |
|  |  |  |  |  |  |  |  |  | Su | $\boldsymbol{\square}$ | D $T$ |  |  |  |  |  |
|  |  |  |  |  |  |  | - | B ${ }^{\text {a }}$ | 9 | B | -5 |  | E |  |  |  |
|  |  |  |  |  |  |  |  |  | 2 | 1 |  |  | R |  |  |  |
|  |  |  |  |  |  |  |  | H | Hu | d |  |  |  |  |  |  |
|  |  |  |  |  |  | 0 | 0 |  | U | A |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | T | G |  |  |  |  |  |
|  |  |  |  |  |  |  |  | A | A R | W N | $\mathrm{N}^{\text {R }}$ | R |  |  |  |  |
|  |  |  |  |  |  |  | C | L C |  | 0 | J | + | Mo |  |  |  |
|  |  |  |  |  |  | M R | A |  |  | P |  |  |  |  |  |  |
|  |  |  |  |  |  |  | T |  | 8 |  |  | S |  |  |  |  |
|  |  |  |  |  |  | K ${ }^{\text {d }}$ |  |  |  | H |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Finally the author, Arnold Eidus is an anagram of 'Slide Around'.

## Dr Boris

The cheat codes referred to in the review are clinical terms which can be looked up in the SNOMED CT clinical term browser (hinted by Opaque medical terms). These spell out

276305003 -> PREOCCUPATION WITH RUIN
257695007 -> RURAL MINOR ROAD
21481007 -> OVER
11713004 -> WATER

Which are general hints towards the treasure location being near Godstow ruin, Binsey lane and the location of the bridge. The image used is from the Atari game 'Dr Boris' which was featured in Atari User in 1987. Here is the original image from the magazine front cover. Assuming this is 1st October 1987, the score for the game reflects the date (similar to the quick review scores/dates)


> YOUR name is Doctor Dorrs. school just graduated from medica hew hosand have gone to work in th of Eng pital somewhere in the North of England. But the building work isn't complete and due to cutbacks in the NHS you have to go out there and do the work yourself!

> Unfortunately the building site is littered with unexploded bombs, so as Oxfordshire reference) substituting for the north of england.

We noted that the game was clearly reviewed by DaphneHQ team member Seb Bacon, who had likely left a Bacon cipher in the formatting of his name, which would translate to the enigmatic ' C '.

## Quick Reviews

This puzzle relates to storms and hurricanes, which is hinted several times by website site updates as well as the phrase 'Pouring'. 'Mixture of' is an anagram indicator to rearrange 'rauncher' -> 'hurricane'. 'And tamer ones' also contains the letters to make the phrase 'storm names' or 'named storms'. Hurricanes are also natural disasters - or catastrophes, linking into the game.

For each line:

- Numbers of cats refer to the category of the storm
- Numbers refer to the date that the storm first attained that category, excluding year
- 21 indicates 21 st century in cases where it's ambiguous
- A = Atlantic, P = Pacific, SP = South Pacific

| Title | Cats | Letter | Date | Storm Name |
| :--- | ---: | :--- | :--- | :--- |
| The Vindications | 5 | A | $10 / 10$ | Michael |
| Mamma Mia! | 5 | A | $5 / 8$ | Allen |
| Unrelenting Effort | 4 | A | $17 / 9(21)$ | Teddy |
| The Matrix | 4 | P | $22 / 7$ | Hernan |
| Spherical Fruits | 5 | A | $11 / 9$ | Isabel |
| Humpty Dumpty | 4 | SP | $23 / 3$ | Sarah |
| Verbal Nonsense | 4 | P | $7 / 9$ | Olivia |
| Crone Wars | 4 | P | $8 / 10$ | Norbert |
|  |  |  |  |  |
| The Saint | 4 | P | $2 / 10$ | Marie |
| Flying Aces | 5 | A | $5 / 8$ | Allen |
| Gone Fishing | 2 | P | $11 / 7$ | Celia |
| The Dark Tower | 2 | P | $25 / 7(21)$ | Hilary |
| Treacle Time | 5 | A | $11 / 9$ | Isabel |
| Enter The Labyrinth | 5 | SP | $5 / 3$ | Niran |
| The Mystic Circle | 4 | A | $2 / 11$ | Eta |

The storm names spell MATHISON MACHINE. Mathison is Alan Turing's middle name, so this is cluing the Turing machine for the punched tape. This relationship is also hinted by the reuse of the Black Cat emoji.

The game names also contain various thematic links to the hunt. Some of the lines are direct quotes from 'Library of Babel" by Borges: "The Vindications", "Unrelenting Effort", "Spherical Fruits" and "Verbal Nonsense". Enter the Labyrinth is linked to both the Borges Labyrinth in Venice, as well as his story "The Two Kings and the Two Labyrinths". Other names are allusions to Lewis Carroll': 'Humpty Dumpty" is a character, 'Treacle Time' links to the story of the Treacle Well (and the real world treacle well in Oxford). 'The Matrix' seems to be a reference to Lewis Carroll's Matrix cipher. Mystic Circle, Crone Wars and Dark Tower seemed to be witchcraft references, while Dark Tower is possibly also a reference to the game 'Citadel'. If so, 'Mamma Mia' is likely to be a reference to Mario.

## Catastrophe Review

The review of Catastrophe contains numerous hints for playing through the game.
"Who cares which continent the cats came from" We thought this might be linked to the Catamaran manufacturers, but couldn't provide a wider link. 'Random herbs' is tied to the search for herbs to allow you to pass through the circle.
"This is a cabbage of a game, and a bad one at that" a hint of BAD CABBAGE to open the door in the Narthex.
"Sound effects" a hint that linking the sounds to the letters is important for opening the Narvex door.

Maggie Philbin is most famous for presenting tomorrow's world from 1983 to 1990, but we couldn't find a deeper link to a potential hint.

## Reader's cats

We didn't get a satisfactory answer to this puzzle. Two different types of cat in the pictures. Assuming stripey cats are 1 and white and black cats are 0 , reading left to right, you get $11110010010=1938$. The Reader's cats were also referenced on the slips obtained from finding the main treasure. Unlike the Catscan cats (which belong to members of DapheHQ) the Reader's cats can be reverse-searched back to generic stock images. We also tried morse code (spots and stripes) and selecting out letters from READERSCATS, based on the pattern.

## Barnwood Electrical's Concertronic

The Ad is referencing Sir Charles Wheatstone, who invented the concertina and was born in Barnwood. He is also responsible for developing the Playfair cipher (used in this puzzle) and helped to develop telegraphy (a thematic link to the telegraph cipher of Lewis Carroll).

The slanted lines around the border are coded in Cooke and Wheatstone telegraph code.
Once split into sequences of five lines, each sequence points to a letter.


The code spells out the message: "Twenty nine metres within bukells bounds". This is a reference to the 1886 Buckell's boundary perambulation and is discussed later in the treasure location section.

The concertina itself is in the shape of a 'crimson hexagon' which is a link to 'Library of babel' as well as the Rosa Tech Puzzle. The hint from solving Rosa Tech "DATA MATRIX IS THE KEY" can be used to decipher the serial number, which is Playfair encoded (5x5) with the keyword: DATA MATRIX. After dropping repeated letters and the space from the keyword this gives:

TRY SEVERAL DIFXFERENT SEMA TEXT DECODERS

Semacode is a brand name for data matrices, and this is advising us to try different decoders in order to be able to extract the bytes and see any errors in the encoding. The $X$ in DIFFERENT is a standard placeholder to handle repeated letters.

## Edith's Ethereal Peripherals

The font used in this puzzle is 'Herculanum', which seems to be a thematic link to the historical objects. "Working within our limits since 1886" is a reference to Mayor Robert Buckell and the 1886 Oxford city limits. We think Edith can potentially reference both Edith of Winchester (founder of Godstow abbey) and Edith Liddell (sister of Alice).

Each object name is a search phrase for the online Pitt Rivers Museum collections: http://databases.prm.ox.ac.uk/fmi/webd/objects online

All objects can be found this way and have a common association with witchcraft, apart from two Noah's ark objects (cat and squirrel). The objects are:

1 - Dark grey cat figure with black stripes. Part of a Noah's Ark set. One of a pair. 1956.9.70 .183
2 - Object stuck with pins, used in sympathetic magic. 1917.53.777
3 - Holed stone used as amulet. 1896.76.3
4 - Wooden post carved with designs; a 'witch post' or 'Mass post'. 1893.18.10
5 - Squirrel or seated cat figure from Noah's Ark set. One of a pair. 1956.9.70 .5
6 - Rowan tree loop used as prophylactics against witches, Castleton, Grosmont, York 1893.18.2

7 - Stuffed toy figure of a kylin, a mythological lion / dragon 1935.36.56
8 - Frechen stoneware Bartmann (aka 'Bellarmine', 'Greybeard') jug [.1] 1910.18.1 . 1
"Cat themed dot matrix" references the ambiguity as to whether it is a carving of a cat or a squirrel.

These object descriptions are used as a reference text for the triplets in the AI Art section. We think this is hinted by the repeated use of three-part sentences in the customer reviews text at the bottom. When combined with AI ART this gives the phrase:

Follow Buckells peramBulation starting with jingjing stoNe and count SikS markers deosil then follow ditch South

This is discussed further in the Treasure Location section.

## DapheHQ Games / Which is greater?

The hidden game can be extracted from the PDF and looks like this:


We'd like to think that this is depicting an 'Easter Egg', but could also reference the acorn logo. The advert contains a partially obscured phone number. The missing three digits can be identified by solving the "which is greater?" note. We noted that 'Which' is a homophone for the thematic 'witch', and that the first five digits can be run through the secret decoder to obtain the word 'WITCH' as well as being the area code for Northwitch. This is linked to the thematic themes of the hunt. Northwich is in Cheshire, which is linked to Lewis Carroll via the Cheshire cat, and his birthplace. It was also home of 'Clares' which supplied computer equipment in 1987 magazines with a similar background logo.


## Each line of the note gives a binary digit depending on whether the first or second answer is larger:

## Question 1

- 0: Population of London
- $\quad$ 9 million
- 1: No. hairs on average domestic cat
- $\quad 30$ million


## ANSWER: 1

## Question 2

- $\quad 0$ : The cumulative total number of gold medals won in the summer Olympic Games since 1896 - 5463 This is the total golds in the wikipedia medal table.
- 1: The number of raindrops that fall on a football pitch in Loughborough in an average minute - 1 raindrop $\sim 0.05 \mathrm{ml}$. daily rainfall here $\sim 1.9 \mathrm{~mm}$. area of football pitch $\sim 7140 \mathrm{~m}^{\wedge} 2$
- => 2.7E8 drops per day, or ~2E5 drops per minute


## ANSWER: 1

## Question 3

- 0: The number of chickens that lived in the 20th Century: There were about 14 billion population in 2002. Meat chickens live for 40 days. Assuming this for the entire history gives 12.7 trillion. But chicken production was far lower earlier in the century so must be significantly less than 12 trillion.
- 1: The cumulative number of photographs taken since the invention of photography 12.4 trillion


## ANSWER: 1

## Question 4

- 0: The volume of the world's largest oil tanker
- It's unclear whether this means currently in service. Based on wikipedia volumes range from $234 \mathrm{k}->275 \mathrm{k}$ GT. Applying volume conversion formula =>
- $7.4 \times 10^{5} \mathrm{~m}^{3}$-> $8.63 \times 10^{5} \mathrm{~m}^{3}$
- 1: the volume of cups of coffee drunk globally in 2020
- Roughly 165 million * 60 kg bags.
- Filter coffee ratio $\sim 250 \mathrm{~g}$ water $/ 15 \mathrm{~g}$ coffee. Significantly less water for espresso. So compute upper bound with filter ratio.
- $\quad<1.65 \times 10^{8} \mathrm{~m}^{3}$

ANSWER: 1

Question 5

- 0: The number of people believed to have died as a result of what Popeye did on the 11th of August
- Robin Williams (who played popeye) committed suicide on Auqust 112014.
- Afterwards, there were estimated to be 2000 excess suicides.
- 1: The number of footballers in the UK Premier League
- $\underline{557}$


## ANSWER: 0

## Question 6

- 0: The number of people flying during an average second of 2019
- Total passengers: 4.5 billion, with an average flight duration of 2-3 hours. "How many people are expected to be in the air at any one time" is: 4.5 billion * (2-3 hours) / (\# hours in year) => 1 million -> 1.5 million
- 1: The population of Reno
- $\quad \underline{271.953}$


## ANSWER: 0

## Question 7

- 0: The speed in km per hour of the highest speed achieved on land by any vehicle: This was 10,326 obtained by the unmanned Super Roadrunner Rocket Sled
- 1: the average number of paces walked in a day by an American: 3000-4000

ANSWER: 0

Question 8

- 0: The cost of the transistors in an iPhone 13 Pro Max if each had been bought at 1960 (inflation adjusted) prices: 15 billion transistors * $\$ 8-\$ 30=\$ 120-450$ billion
- 1: The cost to the USA of the war in Afghanistan $=\$ 2.313$ trillion

ANSWER: 1
Question 9

- 0: The percentage of the UK population who died from COVID-19 in January 2022
- Total deaths: 8100 . UK population $\sim 68$ million $=>0.012 \%$
- 1: The percentage of the world's population (at that time) that died in the bloodiest single-day battle before 1900
- Likely to be battle of Cannae in 2168 BC. Death toll of $\underline{54,000}$ against a world population of $\underline{150-227}$ million gives 0.024-0.036\%
ANSWER: 1
Question 10
- 0 : The number of golf balls you can fit in a recommended-depth Olympic swimming pool
- Referenced on quora $\sim 45$ million balls
- 1: The population of the UK in 1862
- ~29 million (source: ONS)

ANSWER: 0
Result is 10-digit binary string: 1111000110 or 966 in decimal So the complete DapheHQ number is 01606663966

Phoning this number (strongly hinted by the repeated "call now") gives a message containing a sequence of digits. These can be split into groups of five digits and decoded using the secret decoder to give the following message:

```
08301 #bLOcK
01003 #OUT
07702 #LETTER
04204 #WALKS
04601 #AND
09402 #CAT
07603 #NAMES
05603 #IN
07503 #GRIDS
04601 #AND
02602 #COMBINE
01201 #TO
09602 #MAKE
01601 #GRILLE
```

These instructions can be followed literally to form a Grille, by taking a $22 \times 22$ grid and removing all blocks that correspond to cat names (either in word search or game registration), are part of the Arrows walk, or are part of the Hanoi walk. When the Grille is placed on the Game Registration grid this yields the following:

| S | O | Z | N | O |  |  |  |  |  |  |  | O |  | M |  |  |  |  |  | S |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Z | T |  | B | O | F | E | A |  | R |  | N | G | T |  | T | U | N | Q | O | T |  |  |
| Y |  | H | W |  | E | L |  |  |  |  | O | R | J | M | J | V | V | O | Q | H |  | S |
| A | H | R | E | O | V |  |  |  | E | N | P | N | H | 0 | F | X |  | N |  | E |  |  |
| $\|D\|$ | A | A | W | 0 | X | N |  |  |  | D | Z | S | H |  | 0 | Y |  | T | A |  | R | A |
| M | E | U | A | V | s |  |  |  |  |  | L | O | N | E | F | O | N | S | P |  | B |  |
| Z | U |  | R |  | E | P |  |  |  | E | X | T |  | T | H | N | R | V | 0 | E |  | E |
| C | M |  | H | P | M | E | T |  | Q L |  | F | M | E | M | N | U | P | D | C | R |  | U |
| $\mathrm{F}$ | N | A | X | E | A |  |  |  |  |  | T | M | P | S | O | S |  | , |  |  | B | A |
| T | A | P | V | A | J |  |  |  |  | A | S | U | A | D | T | L |  | L |  | B | A | M |
| Q | H | S | L | R | V |  |  |  | D | B | A | N | B | O | E | H | E | Z | O | G |  | E |
| J J |  | N | X | A | $\bigcirc$ |  |  |  |  |  | Z | K | T | E | L | A | R | G | C | K |  |  |
| $\|R\|$ | A | C | U | M | T |  |  |  | S |  | H | U |  | Z | H | P | R | U | E |  | R | R |
| C | N | E | A | H | S |  |  |  |  |  | U | S | A | W |  |  | E | T | Q | L |  | B |
| O | O | D | F | S | L |  |  |  |  | B | L | T | T | G | 1 | N |  | B | C | D | $N$ |  |
| $\|c\|$ | J | E | P | R |  |  |  |  |  | M | A | R | W | N | R | Y | $Y$ | Z | R | , | A |  |
| $\|z\|$ | G | M | Q |  | E | Q |  |  | C |  | C | A | O | J | N |  | M |  | E | B | L |  |
| N | C | E | O | N | S | M |  |  | A |  |  | P | E | N |  | F | T | X | U | D | T |  |
| $\|x\|$ | C | T | D | O | G | R |  |  |  | N | B | A | - | X | S | C | U | R | E |  | A |  |
| $\|A\|$ | P | E | M |  | S |  |  |  |  |  | C | O | N |  |  | P | G | C | R | E | T |  |
|  | E | R | R | T | E | R |  |  | v | U | $Z$ | B | H | V | B | L | E | X | X | x | P |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

FROM BM SET BEARING TO TWO SEVEN NINE AND TRAVEL ONE FOUR THREE METRES TO SMALL BRIDGE WHERE YOU FIND PRIMARY CONCEALED TREASURE AMIDST CONCRETE RUBBLE XX

This is part of the Binsey Lane route to the treasure discussed further in the Treasure Location section.

## Christmas Fun (Wordsearch)

The wordsearch grid contains names from "The Naming of Cats" by TS Elliott. They repeat not contiguously (e.g. every other letter in top row) over the entire grid.

| P |  |  |  | S |  | S E | E E | E R |  |  |  |  |  |  |  | V |  |  |  |  | T | T |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| U | A | P | 1 | R | R S | S 1 | I H | H X | Q | Q S | S | S | Q | N | V | A |  | L | H | HV | $\bigcirc$ | N |
| Z | $\bigcirc$ | J | F | F A | A R | R M | M N | N E | S | S Y | Y V | $\checkmark 1$ |  | C | T | O | R | A | J | J O | N | W |
| A | T | H | HZ | Z A | A C | C N | N G | G G |  |  | E | T | O | B | R | G |  | Z | E | A | A |  |
| L | 1 | L | B | B | A Q | Q U | $\bigcirc 1$ | 1 L | Y | E | E | M | Y | X | P | L | A | N | M | M | - | T |
| O | A | D | M | M | F | F E | E L | L |  |  | B | B | E | P | G | I | S | E | W | WL | E | C |
| T | N | R | R Z | Z | A | D E | E V | $\checkmark \mathrm{J}$ |  | M | M R | E | E | T | N | E | T | R | L | S | S | O |
| M | S | U | N | N | H | K K | K W | W A | U | S | S T | T 1 |  | R | U | A | W | P |  | X | X |  |
|  | F |  | C | C |  | K O | O S | S R | R T | T | D | D |  | X | V | H |  | V | O | P | A | S |
| T | B | O | M | M |  | B A | A L | L | U | R | R 1 |  | N | E | A | C | J | Q | E | V | Q | L |
| L | C | L | Y | Y | c | N | NO | O E |  |  | U | M ${ }^{\text {P }}$ | P | E | A | J | T | E | R | R O | A | Z |
| U | G | U | N | N D | B | B S | S U | U T | U | S | S U | UZ | Z | C | A | L | M | O | N | N | $\bigcirc$ | J |
| A | M | E | S | S | S | S V | V | 1 L | C | R | R | T 0 | OR | R |  | J | O | N | R | R A | A | B |
| T | K | A | A H | H A | A N | $N$ G | G C | C D | U | S | S B |  |  | O | K | U | E | O | R | R J | J | E |
| B | 1 | L | L | B | B | A | A $\times$ | $\times 1$ | L | E | B | B K | K | Y | K | L | P | L | F | N | , A | M |
| T | $\bigcirc$ | P | R | R N |  | U | $\cup$ A | A D | W | W | S | D | M | E | U | Q |  | U | S | S | O | E |
| L | E | V | C | C | T | A | A D | D Y |  | M | M | E $\times$ | X | T | I | K | E | N |  | R | R M | Q |
| U | N | J J | S | S K | K U | S | S | T K |  |  | R 0 | O | T | A | P | Q | U | A | X | K | K |  |
| C | $\bigcirc$ |  | M U | U |  | V | V E | E I |  |  |  |  |  |  | V | T |  | L | P | B | 3 | W |
| $\bigcirc$ |  | M M | M U | U | B | A | A | I Y |  |  | A T |  |  |  | W | U | R | A |  | M | N | A |
| J | $J$ | V | $\checkmark$ P | P K | K | U | U E | E L | K |  |  | F |  | M | F |  | Z | M | U | L | $\bigcirc$ |  |
| R |  |  | M P | P E |  |  | E R |  |  |  |  |  |  |  |  | S | A | L |  | N | V |  |

The resulting marked squares form a data matrix, which decodes to $\mathbf{p 4 0}$. This is discussed further in the Data Matrix section below. We were unable to find a use for the non-cat letters. We noted that ATH (as part of "Jonathan" appears prominently in the grid. The cat names are also used elsewhere to form a grille (see 'Which is greater')

## Rosa's Tech Solutions

This puzzle is closely related to the Brian's Computer Systems advert. 'Sister company’ references the fact that the prices correspond to Cambridge College founding dates, rather than Oxford dates. Each row can be converted to a letter by matching to the corresponding Cambridge College, finding that college's Oxford sister and then converting the Oxford college to a letter using the college -> letter mappings from the Quiz. The message then spells out DATA MATRIX IS THE KEY, which is a hint to use DATA MATRIX as the Playfair keyword to decode the Concertina serial number.

| Item | Price / Year | Cambridge College | Oxford Sister |  |
| :---: | :---: | :---: | :---: | :---: |
| Acorn Colour | 1428 | Magdalene | Magdalen | D |
| Microvitec CUB | 1348 | Gonville and Caius | Brasenose | A |
| Econet Module | 1284 | Peterhouse | Merton | T |
| Scanlight Scanner | 1348 | Gonville and Caius | Brasenose | A |
| Citizen Swift 9 | 1896 | St Edmunds | Green Templeton | M |
| HP Paintjet | 1348 | Gonville and Caius | Brasenose | A |
| Star LC20 | 1284 | Peterhouse | Merton | T |
| Dongle Dangle | 1326 | Clare | Oriel | R |
| Joystick Interface | 1885 | Hughes Hall | Linacre | 1 |
| A3000 | 1584 | Emmanuel | Exeter | X |
| A5000 | 1885 | Hughes Hall | Linacre | I |
| A5000 HD | 1350 | Trinity Hall | All Souls | S |
| Master 128K | 1284 | Peterhouse | Merton | T |
| BBC Model B | 1869 | Fitzwilliam | St Edmund Hall | H |
| Solidisk RAM | 1596 | Sidney Sussex | St Johns | E |
| Electron | 1882 | Selwyn | Keble | K |
| RM Nimbus | 1596 | Sidney Sussex | St Johns | E |
| Rainbow 100 | 1871 | Newnham | Lady Margaret | Y |

The Rosa Tech logo is also in the shape of a crimson hexagon which links back to the Barnwood Electricals puzzle (and Borge's Library of Babel). Behind the logo is a sequence of text which corresponds to the characters of a reference hex for the Library (see Library of Babel and data matrix section for continued discussion)

## Christmas Fun Quiz

Each of the quiz questions has an answer that shares a name with an Oxford college. Each of the 39 Oxford colleges is used exactly once, and the number associated with each question provides an index into the college name. This college to letter mapping is used to spell out a Christmas greeting here, but is also used as a mapping from colleges to letters in numerous other puzzles.

- 6. Where is a boulder covering someone who was once a sack? ST ANNES's Church (E)
- Meg Shelton, witch buried under a boulder at St Annes. Turned herself into a sack of corn
- 3. Under where were the remains of a brazen wizard kept in times past? LINCOLN COLLEGE (N)
- Brazen is a reference to the Brazen head story
- 'Times past' is a hint for the head saying 'Time is. Time was. Time is past.'
- Robert Grosseteste's brazen head were supposedly kept in the vaults under Lincoln College
- 1. David's root JESUS (J)
- 'Root of David' is a scriptural name for Jesus .
- 8. It has tekhelet in its arms REUBEN COLLEGE, Oxford (O)
- The coat of arms of Reuben college contains the colour Tekhelet, this is from the link to Jerusalem
- 4. Where does Isambard lend books? LADY MARGARET HALL (Y)
- The library cat is called Isambard at Lady Margaret Hall .
- 2. Maud and Alice were first; Alice was the last. Where? EXETER (X)
- Maud Park and Alice Mead were the first witches to be sentenced to death for witchcraft. Alice Molland was the last witch, both at EXETER castle
- 8. The home of the chaser whose followers won 110-60* GREEN TEMPLETON (M)
- The Oxford Radcliffe Chimeras won the British Quidditch Cup against Keele in 2013. Ash Cooper was Captain and a chaser, went to Green Templeton.
- 3. Where did the city arms become a doorway for the star of the sea? BRASENOSE (A)
- The former City Arms pub building, now part of Brasenose College' St Mary's entry. Star of the sea (aka Stella Maris) is a reference to the Virgin Mary in her 'guiding light' persona.
- 4. In which SCR hangs the image of the man who only got seven years in exchange for his soul? MANSFIELD (S)
- Before the battle of Worcester, Oliver Cromwell apparently sold his soul to the devil for 7 years. A portrait of Cromwell is in Mansfield SCR.
- 9. Nearest to where a saucy bookseller lit a jinxed candle NUFFIELD COLLEGE (C)
- The Saucy Bookseller is Rowland Jenkes. While on trial he lit a poisoned candle. This took place at Oxford Castle/Shire Hall (plaque in County Hall). Nearest college is Nuffield
- 2. Home of the welfare cat who was a dog WADHAM COLLEGE (A)
- Wadham college has a welfare 'cat' who is a dog. (More references to the 'cat' here and here)
- 1. Where Clive shared a room with Paddy: KEBLE (K)
- CS Lewis shared a room with another cadet, Edward Courtnay Francis "Paddy" Moore (1898-1918). They were billeted at Keble at the time
- 4. Where can you make a handkerchief disappear by running round it thrice? ST PETERS (E)
- At St Peter's church in Westleton. Home to both a witch and the devil who you can summon by performing this ritual.
- 1. Where can you find the ant-like first edition of the first book to be primarily about women? BALLIOL (B)
- This refers to Formicarius by Johannes Nider. Formicarius is Latin for "the ant colony". The first edition is held in Balliol. This is the second ever book to discuss witchcraft and the first where the idea of an 'uneducated female' is linked to witchcraft.
- 11. Where might one invoke but not elect the wearer of a martlet? PEMBROKE COLLEGE (L)
- This martlet wearing ghost in Pembroke, Cambridge. Who was invoked but could not be elected president of the debating society.
- 12. Where hotfoot had a meeting with a maker of fake horoscopes in 1964 UNIVERSITY COLLEGE (O)
- Sybil Leek and jackdaw Mr Hotfoot met at University college in 1964. Sybil claimed to provide fake horoscopes to the germans.
- 3. Where was a dragon turned into a hob? NEW COLLEGE (W)
- Draco Malloy was turned into a male ferret (a hob) in new college.
- 2. Where a cipher was found describing a Protector who spoke of Piedmont and Poland WORCESTER (O)
- The Clarke Papers discovered in Worcester college. The protector is Oliver Cromwell.
- 9. In which meadow did the devil talk to a youth who was pretending? CHRIST CHURCH (U)
- John Deydras was a pretender to the throne. He spoke to the Devil in Christ Church meadows.
- 4. The workplace of an astronomer and a chaplain accused of treason. MERTON (T)
- Astronomer is John Stacey. Chaplain is Thomas Blake. Both were at Merton and were accused of conspiring to kill Edward IV
- 10. Where the owner of a mirror hoped to await the secret arrival of special men ST CROSS COLLEGE (L)
- John Dee owned a spirit mirror. He awaited 'secret arrival of special men' at St Crosses
- 9. Whose first principal might have seen a sombrero in France? St HUGHS COLLEGE (O)
- Charlotte Moberly (founding principal of Hughes) claimed to see a man with a sombrero when visiting the Palace of Versaille.
- 6. Centaurs were found on the staff of a major son of which lady of clairvoyance? SOMERVILLE (V)
- Lady of clairvoyance is Lady Jean Somerville. Son is Major Thomas Weir. "The Major's staff, upon closer examination was adorned with carvings of Centaurs"
- 12. Whose employee may have inspired Macbeth? ST JOHNS COLLEGE (E)
- Edmund Tilney who was the Master of Revels at St John's Gate (home of Order of St John).
- 4. Nothing will happen when the king breathes on the inspirational statues here MAGDALEN (D)
- This is related to Narnia, and Aslan breathing on the statues. The inspirational statues are in Magdalen.
- 4. Cats? ST CATHERINES (A)
- This is just St Catherines!
- 4. Where Liz hid Jim in 1667, and they both remain? CORPUS CHRISTI (P)
- James Betts died from asphyxiation after being sealed in a cupboard by Elizabeth Spencer, at Corpus Christi College, Both now haunt the college
- 1. Where did the first sorting ceremony happen? HARRIS MANCHESTER (H)
- The first sorting ceremony of the Oxford Harry Potter society took place at Harris Manchester.
- 4. I can see spirits coming up the stairs like bees. Where am I? TRINITY COLLEGE (N)
- This is a quote from Thomas Allen, who was at Trinity.
- 12. Who judged Duyvel-Landt a great success? WOLFSON COLLEGE (E)
- Duyvel-Land is England during the interregnum (devil land). The book Devil Land won the Wolfsonliterary prize.
- 9. Whose scholars tied an unfortunate cat to an unfortunate bull? ST EDMUNDS HALL (H)
- Scholars of St Edmunds Hall tied a cat to a bull.
- 4. It was about 700 deben. Where was it found? THE QUEENS COLLEGE (Q)
- This was a fine, described in a papyrus found at the Queens College. "The addressee of this series of oaths may be identified with the party that will be sentenced to pay a fine of 700 deben of silver to his opponent"
- 2. Where was the last gas light between? HERTFORD (E)
- Last gas light was on New College Lane, where the bridge of sighs connects two parts of Hertford college.
- 6. Where you might find a teabag ST HILDAS (D)
- Teabag is the cat at St Hilda's college
- 2. Where did the ghost in the machine guy leave his books? LINACRE (I)
- The guy is Gilbert Ryle, who left books to Linacre college
- 2. He may have ignited a dancing frenzy ST ANTHONY (T)
- The main theory for Dancing Mania is Ergotism aka St Anthony's Fire. Fire is hinted by "ignited".
- 5. Elmo the Elephant was beaten by whose furry friend? KELLOGG (O)
- Elmo the elephant was a candidate Mascot for Kellogg's Frosties. Beaten by Tony the Tiger
- 2. The passerine home of John, who was sceptical that anyone can transform men and women into cats. ORIEL (R)
- Related to 'The question of witchcraft debated' by John Wagstaff, which contains the 'transform men and women into cats'. His undergrad was at Oriel Baltimore Oriole is a blackbird, which is passerine.
- 4. Which series started with object 782? ALL SOULS (S)
- ALL SOULS trilogy, starts with the finding on Ashmole 782 (A Discovery of WItches)

Which gives the Christmas greeting:
ENJOY XMAS CAKE BLOWOUT LOVE DAPHNEHQ EDITORS

## Black and White Numbers

The black and white numbers can be interpreted as a DataMatrix by filling in squares of a $22 \times 22$ grid from left to right, according to the number and colour. This is a form of run length encoding. The resulting matrix looks like this:


Which decodes to sh1. (See data matrix section for continued discussion)

## Christmas Crossword

Most (but not all answers) are in alphabetical order. Out of order clues highlighted. We weren't able to find a link between the out of order answers.

- What cats would you only want to raise for 6 years and 364 days? (8) BAKENEKO
- BAKENEKO is a cat raised for seven years, after which it will kill the one that raised it.
- What would the Dutch throw instead of a cat, to cause chaos? (3) BAT
- It's a phrase equivalent to "throw the cat amongst the pigeons".
- In which battle was a defensive line of cats used to defeat the enemy? (8) PELUSIUM
- The battle (PELUSIUM) was won through a very unusual strategy on Cambyses II's part: the use of animals as hostages and, especially, cats.
- Which Prime Minister thought that his cat was so brave he named him after an admiral? (9) CHURCHILL
- Churchill: "Nelson is the bravest cat I ever knew. I once saw him chase a huge dog out of the Admiralty. I decided to adopt him and name him after our great Admiral...."
- Which leader had a cat named after an article of clothing? (7) CLINTON
- Socks Clinton (c. 1989 - February 20, 2009) was the pet cat of U.S. President Bill Clinton's family during his presidency.
- Which creamy word describes a group of cats? (7) CLOWDER
- Three or more cats make up a clowder
- Which cat found food in the ruins of Sevastopol? $(7,3)$ CRIMEAN TOM
- The cat was taken back to the officers' shelter...He became known as Tom, and eventually as Sevastopol Tom (or, in some accounts, Crimean Tom), one of the most famous animals in history.
- What is the full name of the cat who had the longest tail in the world as of September 2016? $(6,7,6)$ CYGNUS REGULUS POWERS
- Cygnus Regulus Powers, a silver Maine Coon cat, has entered the pages of the new Guinness World Records 2018 Edition as the kitty with the Longest tail on domestic cat (living).
- Which cat was said to be smarter than an entire presidential cabinet? (5) DIXIE
- Lincoln said that his cat Dixie was 'smarter than his entire cabinet' and 'didn't talk back, which was a bonus.'
- What is the name of the vampire cat that has a particular fondness for babies? (2,7) EL BROOSHA
- A huge black cat named El Broosha, when she seizes the new-born human baby that is her favourite prey, and sucks its blood.
- Which emperor had suits of clothing made for his cat and her kittens (and got a wet-nurse to look after them)? $(7,6)$ EMPEROR ICHIGO
- The Emperor Ichigo really loved his cats, he even went so far as to order tailors to make tiny suits of clothing for them.
- What facial feature would Egyptians remove upon the death of their cat? (8) EYEBROWS
- According to the documentation of the Greek historian Herodotus (484-425 B.C.), the ancient Egyptians would shave their eyebrows in mourning whenever one of the cats in their home died.
- Which city was set ablaze by 1,000 flaming cats? (7) VOLOHAI
- Unable to breach the walls of Volohai, Genghis Khan resorted to a clever trick. He sent a message from his encampment to the Tangut general announcing that he would end his siege in exchange for a gift of one thousand cats and ten thousand swallows. Astonished by the unusual request, the fortress commander gratefully complied.
- What was the name of the man who sought to defeat his enemies with rocket-power cats? $(5,4,2,7)$ FRANZ HELM OF COLOGNE
- Under a section titled "To set fire to a castle or city which you can't get at otherwise," Helm detailed how to use a rocket cat to set fire to enemy positions by attaching an incendiary to its back and setting it loose. It reads: "Create a small sack like a fire-arrow... If you would like to get a town or castle, seek to obtain a cat from that place. And bind the sack to the back of the cat, ignite it, let it glow well and thereafter let the cat go, so it runs to the nearest castle or town, and out of fear it thinks to hide itself where it ends up in a barn hay or straw it will be ignited."
- What colour were the original cats pyjamas? (6) COBOLT
- It is cobalt blue... 1968 First Edition the Cat's Pajamas \& Witch's Milk
- Who first described meteorological cats? $(5,7)$ HENRY VAUGHAN
- Related to "raining cats and dogs"? HENRY VAUGHAN is related to this phrase lt's Raining Cats and Dogs?
- Where does a cat stalk the land at Christmas eating people? (7) ICELAND
- Icelandic Christmas folklore depicts mountain-dwelling characters and monsters who come to town during Christmas. The stories are directed at children and are used to scare them into good behavior. The folklore includes both mischievous pranksters who leave gifts during the night and monsters who eat disobedient children. The Yule Cat is a huge and vicious cat who lurks about the snowy countryside during Christmas time (Yule) and eats people who have not received any new clothes to wear before Christmas Eve.
- What was the first name of the first person to not have a cat in hell's chance? $(4,12)$ JOHN BILLINGSGATE
- John Billingsgate the late Object of Publick Justice, is now a deplorable Spectacle, which by the singular and uncommon Circumstances attending his Condition, draws the Attention of all the Civilians, Cockfighters, and Anatomists of this Place. Since his Tongue was cut out he has had no rest Day or Night [...]. When his Phrenzy is highest, he makes Signs for Pen, Ink and Paper; but these are now denied him, for the Experiment was made whether Writing would give him any Relief; and it was found that it was only adding Fuel to the Flame. The only intelligible Sentence he has wrote, is the following: "Without a Tongue I have no more chance in Life, than a Cat in Hell without Claws." Then he grew quite delirious.
- Which cat steals corpses to eat them? (5) KASHA
- Kasha are one of the most confused of Japan's yokai. Over the centuries kasha have evolved from a fiery cart pulled by devils to an aged cat that changes form into a corpse-eating monster. Even the calling them yokai is dubious. Although yokai can be a catch-all term for Japan's monsters, the kasha are more properly demons
- Where did a Russian Queen source her cats from? (5) KAZAN
- The tradition of keeping cats dates from the reign of Empress Elisabeth Petrovna, who was offered five cats by the city of Kazan in answer to her 1745 edict of appeal regarding the rat problem at the Winter Palace.
- Who ordered the killing of the carpenter's cat? (10) SHACKLETON
- Shackleton ordered the shooting of the animals to conserve food, and this included McNish's cat, Mrs Chippy, an act for which he could never forgive Shackleton.
- Where did 180,000 cats arrive by ship in 1890 ? (9) LIVERPOOL
- On 10th February 1890 an estimated 180,000 mummified cats, weighing 19.5 tons, were sold at auction at the docks in Liverpool.
- Which king danced in front of bonfire of cats? $(5,3)$ LOUIS XIV
- In 1648 Louis XIV, crowned with a wreath of roses and carrying a bunch of roses in his hand, kindled the fire, danced at it
- Who owned a cat that was 5 sun long and 6 sun high? $(7,3)$ EMPEROR UDA
- The text from Emperor Uda's ancient diary reads:
- "Taking a moment of my free time, I wish to express my joy of the cat. It arrived by boat as a gift to the late Emperor, received from the hands of Minamoto no Kuwashi... The color of the fur is peerless.

None could find the words to describe it, although one said it was reminiscent of the deepest ink. It has an air about it, similar to Kanno. Its length is 5 sun, and its height is 6 sun.

- Which Egyptian god protected the pharaohs against poisonous animals such as snakes and scorpions? (6) MAFDET
- Mafdet (also Mefdet, Maftet) was a goddess in the ancient Egyptian religion. She was often depicted wearing a skin of a cheetah, and protected against the bite of snakes and scorpions.
- Who didn't (despite musical claims to the contrary) name a cat after the Secretary of the Treasury? $(6,10)$ MARTHA WASHINGTON
- The musical claim is from Hamilton
- Where did Silky arrive, after an incredible journey? (9) MELBOURNE
- Silky was lost by his owners 200 miles north of Brisbaine in Australia in the summer of 1977. A year or so later, in 1978, Silky showed up at his owner's house in a Melbourne suburb looking rather thin and rather smelly, but very happy to be home where he was welcomed with open arms!
- Where is a prophetic cat (who won a great victory in 2013) now to be found? $(7,4)$
- We linked to two cats: 2013 predictions seem to do with "Kitty Sanchez" predicting baseball and also Oscar the Therapy cat, In 2013 he died momentarily and was resurrected.
- Which cat got 7,319 votes in 2012 ? (4) HANK
- In the election there were 7,319 write-in votes and Hank's owners stated that these all were votes for Hank, making him third.
- Who first defined space in terms of a cat? $(7,7)$ RICHARD FEYNMAN
- Feynman's first assignment required him to study the nervous system of cats. So he went to the librarian in the biology section and asked her if she could give him a map of the cat.
- Who was given a cat made from a handful of smoke? (6) RUSTUM
- Opening them he presented a smokey-grey kitten, with star-bright eyes and a dainty red tongue to the hero, Rustum, in gratitude for a recent rescue.
- What would resurrect a cat that lost its life due to its inquisitive nature? (12) SATISFACTION
- Curiosity killed the cat, but satisfaction brought it back
- Who feeds Roman cats? $(2,7)$ LA GATTARA
- The Wiktionay describes the Gattara in this way: "Person (female) who feeds stray cats".
- What can't cats taste? (5) SWEET
- Cats Can't Taste Sweetness, Study Finds Some scientists have long suspected that cats, which are strict carnivores, are "sweet blind."
- Where was a cat mayor for 20 years? (9) TALKEETNA
- Stubbs (April 12, 1997 - July 21, 2017) was a cat who was the honorary mayor of Talkeetna, Alaska, from July 18, 1997, until his death.
- Which island has a population of cats that outnumbers people almost 4:1? (11) TASHIROJIMA
- The 4:1 ratio is mentioned in this source (Wikipedia only goes as far as giving a ratio of 2:1
- Who was Ta-miu buried with? (8) THUTMOSE
- Prince Djhutmose (Thutmose) was so fond of his cat Ta-miu (she-cat) that he had a fine limestone sarcophagus carved for her, had her body mummified and then carefully buried.
- Which cat kept letters free of mouse attack for 14 years? $(4,3,5)$ TIBS THE GREAT
- Tibs the Great was the British Post Office's "number one cat" and kept the post office headquarters in London completely mouse-free during his 14 years of service.
- Who confessed that a man accompanied by a red and black cat instructed her to hurt children? (6) TITUBA
- possibly An Indian Slave Woman Confesses to Witchcraft - She was accused of being a witch. The man was accompanied by a red rat and a black rat in her testimony. Told her to hurt children. But they were rats, not cats.
- What parasite do you probably share with cats? $(10,6)$ TOXOPLASMA GONDII
- A single-cell parasite, Toxoplasma gondii, is perhaps best-known for its connection to cats. The parasite can move from its feline host to humans, most commonly through contact with cat feces.
- Which cat was the first in space? (9) FELICETTE
- On Oct. 18, 1963, a French cat named Félicette became the first and only feline to ever travel to space.
- Where did a $\$ 20 \mathrm{~m}$ cat fail in its first mission? $(10,1,1)$ WASHINGTON DC
- Victor Marchetti, a former CIA officer, said Project Acoustic Kitty cost about $\$ 20$ million. The first Acoustic Kitty mission was to eavesdrop on two men in a park outside the Soviet embassy in Washington, D.C. The cat was released nearby, but was hit and allegedly killed by a taxi almost immediately.
- Which president had a bird-like cat? (6) WILSON
- apparently had a cat called Puffins
- Which cat is ATU545B? $(4,2,5)$ PUSS IN BOOTS
- In folkloristics, Puss in Boots is classified as Aarne-Thompson-Uther ATU 545B, "Puss in Boots", a subtype of ATU 545, "The Cat as Helper".
- Where is "Kattenstoet" held? (5) YPRES
- On the second Sunday of May since 1955, an unusual procession marches down the streets of Ypres, a small town near the French border of Belgium.


Highlighted yellow cells spell: hanoi describes walk on colour grid

## Game Registration

Registering the game required you to input letters from the grid. The fairly obscure colour names match as follows:

What is the 1st white letter? O
What is the 3rd nepal letter? D
What is the 1st yellow letter? E
What is the 6th very dark blue letter? V
What is the 1 st tom thumb letter? E
What is the 1 st santas gray letter? C
What is the 2nd bossa nova letter? A
Tom Thumb has a thematic link to witchcraft via Reginald Scot's Discoverie of Witchcraft.

Here are the letter locations selected for the registration:


We couldn't detect any notable change in the game post-registration. How disappointing.
In addition to decoding, the grid also contains names from 'The naming of cats' similar to the wordsearch, as well as a few shorter thematic words: CAT, DOG, MEW

| S | O | Z | N | O | L | A | F | Y | R | J | O | C | M | S | B | G | M | V | S | C | E |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Z | T | L | B | O | F | E | A | R | I | N | G | T | 1 | T | U | N | Q | O | T | C | F |
| Y | 1 | H | W | J | E | L | L | Y | L | O | R | U | M | J | V | V | O | Q | H | J | S |
| A | H | R | E | O | V | K | J | E | N | P | N | H | 0 | F | X | 1 | B | T | E | V | L |
| D | A | A | W | O | X | N | H | N | D | Z | S | H | 1 | O | Y | 1 | T | A | T | R | A |
| M | E | U | A | $V$ | S | A | E | $J$ | Y | L | O | N | E | F | O | N | S | P | P | B | L |
| Z | U | F | R | K | E | P | U | 1 | E | X | T | C | T | H | N | R | V | O | E | O | E |
| C | M | 1 | H | P | M | E | T | Q | L | F | M | E | M | N | U | P | D | C | R | M | U |
| F | N | A | X | E | A | U | S | G | 1 | T | M | P | S | O | S | E | M | 1 | L | B | A |
| T | A | P | V | A | J | 1 | P | H | A | S | U | A | D | T | L | T | L | R | B | A | M |
| Q | H | S | L | R | V | 1 | G | D | B | A | N | B | O | E | H | E | Z | O | G | L | E |


| $J$ | T | N | X | A | O | A | W | U | L |  | Z | K | T | E |  |  |  | G | C |  | J | W |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| R | A | C | U | M | T | P | E | S | L |  | H | U |  |  | H | P |  | U | E |  | R | R |
| C | N | E | A | H | S | O | Y | $\bigcirc$ |  |  | U | S | A | W |  | E | E | T | Q | L |  | B |
| O | $\bigcirc$ | D | F | S | L | N | F | E | B |  | - | T | T | G |  | N |  | B | C | D | N | S |
| C | J | E | P | R | E | 1 | P | 1 | M |  | A | R | W | N | R | Y | Y | Z | R | E | A | U |
| Z | G | M | Q | L | E | Q | L | C | L |  | C | A | O | J | N | C | M | O | E | B | L | T |
| N | C | E | O | N | S | M | R | A | L |  | - | P | E | N |  |  | T | X | U | D | T | E |
| X | C | T | D | 0 | G | R | E | T | N |  | B | A | O | X | S | c | U | R | E | Q | A | M |
| A | P | E | M | 1 | S | K | D | S | T |  | c | O | N |  |  | P | G | C | R | E | T | D |
| M | E | R | R | T | E | R | J | V | U |  | Z | B | H | V | B | L | E | x | X | X | P | A |
| V | T |  | U |  | U | S | T | U | S |  |  | Y | J | U | - | G | R | O | E | G | V | B |

The cat names are used to form a grille, in combination with other puzzles (see 'Which is greater')

The background colours of the grid form patterns of Oxford College scarf colors. This is hinted by solving the Battleship down puzzle to obtain:

## MAKE OXON SCARVES WITH HUE TABLE

Each scarf is separated by a gray square as shown below

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | ' |  | 30 |  | F | E | A | R |  | N | G |  |  | T | U |  |  |  |  |  |  |
|  |  | H |  | $J$ |  | E | L |  | Y |  |  |  |  |  |  |  |  | $\bigcirc$ |  |  |  |  |
|  |  | , |  | E | - | v | K | $J$ | E | N | P | N | H |  |  | x |  | B | 0 |  |  |  |
|  |  | A A |  | N |  |  | N | H |  |  |  |  |  |  |  | Y |  | T | A |  |  | A |
|  | M | U |  | A V |  | S | A | E | J | Y | L | - | N | E | F | $\bigcirc$ | N | S | P | P | B | L |
|  |  | F |  | R K | K | E | P | U |  | E | $\times$ | T | c | T | H |  |  |  | 0 | E |  |  |
|  |  | 41 |  | H |  | M | E | T | Q | L | F | M | E | M | N | U |  |  | c |  |  | U |
|  |  | V A |  | X |  | A | U | S | G |  | T | M | P | S | - | S |  | M |  | L |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | D | T | L |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | O |  |  |  |  |  |  |  |  |


| J | T | N | X | A | O | A | W | U | L | Z | K |  | E | L | A | R | G | C | K | U | W |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| R | A | C | U | M | T | P | E | S | L |  | U |  | Z | H | P | R | U | E |  | R | R |
| C | N | E | A | H | S | O |  | O |  | J | S |  | W |  | E | E | T | Q | L |  | B |
| O | 0 | D | F | S | L | N | F | E | B | L |  |  | G |  | N |  | B | C | D | N | S |
| C | J | E | P | R | E | 1 | P |  | M | A | R | W | N | R | Y | Y | Z | R | E | A | U |
| Z | G | M | Q | L | E | Q | L | C | L | C | A | O | $J$ | N | C |  | O | E | B |  | T |
| N | C | E | $\bigcirc$ | N | S | M | R | A | L | L | P | E | N |  | F | T | X | U | D | T | E |
| X | C | T | D | 0 | G | R | E | T | N | B | A | O | X | S | C | U | R | E | Q | A | M |
| A | P | E | M | I | S | K | D | S | T | C | O | N | I | 1 | P | G | C | R | E | T | D |
| VI | E | R | R | T | E | R | J | V | U | Z | B | H | V | B | L | E | X | X | X | P | A |
| V | T | A | U | G | U | S | T | U | S | X | Y | $J$ | U | E | G | R | O | E | G | V | B |


| B | BALIOL | 0 | WORCESTER | A | WADHAM COLLEGE |
| :---: | :---: | :---: | :---: | :---: | :---: |
| L | PEMBROKE | N | LINCOLN | N | TRINITY |
| E | WOLFSON | C | NUFFIELD | D | MAGDALENE |
| N | LINCOLN | H | ST EDMUND | R | ORIEL |
| D | MAGDELEN | R | ORIEL | E | ST ANNE'S |
| M | GREEN TEMPLETON | I | LINACRE | A | BRASENOSE |
| A | NADHAM | S | MANSFIELD | P | CORPUS CHRISTI |
| P | CORPUS CHRISTI | T | MERTON | P | CORPUS CHRISTI |
| A | BRASENOSE | A | BRASENOSE | L | ST CROSS |
| N | LINCOLN | N | LINCOLN | Y | LADY MARGARET HALL |
| D | MAGDELEN | D | MAGDELEN | C | NUFFIELD |
| D | MAGDELEN | $J$ | JESUS | 0 | UNIVERSITY |
| A | VADHAM | A | BRASENOSE | 0 | REUBEN |
| T | MERTON | C | NUFFIELD | R | ORIEL |
| A | ST CATHARINES | K | KEBLE | D | MAGDALENE |
| W | NEW | O | UNIVERSITY | S | MANSFIELD |
| 1 | LINACRE | N | LINCOLN |  |  |
| T | MERTON | S | MANSFIELD |  |  |
| H | ST EDMUND | T | MERTON |  |  |


| $R$ | ORIEL |  | J | Jesus |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |  |  |
| O | UNIVERSITY |  | O | REUBEN |  |  |
|  |  |  |  |  |  |  |
| S | MANSFIELD | H | Harris Manchester |  |  |  |
| E | WOLFSON | N LINCOLN |  |  |  |  |

The combined message reads:

## "BLEND MAP AND DATA WITH ROSE ON CHRIST AND JACK ON ST JOHN AND REAPPLY COORDS"

This is discussed further in the Battleship Down section. This grid is also used to perform two walks, one based on Hanoi (discussed in the News section) and the based on the Arrow's direction (discussed in Actual Reality Games section).

## Main Treasure Location

The main treasure is located in the grounds of the ruins of Godstow Abbey, Godstow, Oxford in a hollow stone underneath an ash tree by a bridge in the location shown on this map:


Incidentally this is very close to the topical "what three words": hint.needed.clap

The general location is hinted with these hints:

- Thematic references to Godstow from playing CATastrophe
- PREOCCUPATION WITH RUIN RURAL MINOR ROAD OVER WATER (from Dr Boris)
- HOUSE OF GOD (from the Secret Message Decoder)

The specific treasure location can be found with these instructions:

1. Follow Buckells peramBulation starting witH jingjing stoNe and count SikS markers deosil then follow ditch South (from AI Art)
2. TWENTY NINE METRES WITHIN BUKELLS BOUNDS (from 'Concertronic')
3. BY BRIDGE UNDER ASH (from solving the Turing Machine)
4. LOOK INSIDE STONE (from the Hanoi walk)

The key direction here is to follow the route that Robert Buckells took during his 1886 perambulation of the Oxford city boundary, as related by John Gilbert. DEOSIL indicates a clockwise direction, and SIKS indicates "six" and JINGJING is a reference to the Jing Jing Oriental food store on the corner of East Road and Cowley Road. This is approximately the location of the boundary stone which Gilbert numbered " 6 ".

We have to follow the 1886 boundary starting at stone 6, counting six more stones and ending up at stone 12 (which is near Godstow Abbey). We then need to follow the ditch south until we hit a bridge and look under the nearby ash tree for a hollow stone containing the prize. This ash tree is almost exactly 29 metres from the 1886 boundary. The ditch and approximate location of stone 12 and the boundary are shown in the map above.

In addition to the above route to the location, there is an alternative way to get to the treasure:

1. BEGINNING AT PATRON SAINT FOLLOW FELINES TO HOSTELRY AND THENCE PASS OUTSIDE ALONGSIDE JACK AND LOCK PROCEED TO HOUSE WHERE ROSE LIES TO SEARCH OUT CORNER BENCHMARK (from Battleships)
2. FROM BM SET BEARING TO TWO SEVEN NINE AND TRAVEL ONE FOUR THREE METRES TO SMALL BRIDGE WHERE YOU FIND PRIMARY CONCEALED TREASURE AMIDST CONCRETE RUBBLE XX (from the Grille)

Instruction 1 ends at this benchmark on the corner of Godstow Abbey. See Battleships section for the full explanation of the instruction and the route.


A bearing of 279 degrees is followed for 143 metres from the location of the benchmark. That is shown on the map above, and takes us to the bridge. From there the treasure is very close by in the concrete rubble.

## Borges Bonus, Library of Babel and Data Matrices

There are four data matrices given as solutions to Page Numbers, Esoteric Programming, Black and White Numbers, and the Word Search cat names.

The Library of Babel is a short story by Borges. The library contains every possible 410-page book. The library is divided into hexagonal chambers, each with 4 walls of bookcases, 5 shelves per wall, and 32 volumes per shelf.
https://libraryofbabel.info/ is an online version of this library. Each book is located within a particular hexagon (keyed by up to 3254 lower case letters and numbers), and has a wall number, shelf number and volume number. Within each book the pages are numbered.

As such we can interpret the strings encoded within the data matrices as giving these numbers:

| Puzzle | Data Matrix | Encoded string | Library of Babel |
| :--- | :--- | :--- | :--- |
| Esoteric <br> Programming | wall2 | Wall 2 |  |
| Black and white <br> numbers | sh1 |  |  |
| Page numbers | vi21 | Shelf 1 |  |
| Word search cat <br> names | V40 |  |  |

Each of the data matrices contains errors, which we can compute by re-encoding the underlying data into a new data matrix and comparing. (Data matrices use an error correcting code which is why the errors don't disrupt decoding.)

These errors fall within the regions of the Battleship grid assigned to Louis, Thomas, Bernard, and Tokuhiro. This allows us to associate each Data Matrix with one of those regions. Errors below are shown in white, with black showing agreement.

In addition to using the errors to link to Battleship regions, there is also a thematic link between the puzzle that gives each data matrix and the player name associated with each region.

| Puzzle | Error Pattern | Battleship Player + Thematic <br> Link | Battleship Region |
| :--- | :--- | :--- | :--- |
| Esoteric <br> Programming |  | Louis Braille invented Braille, <br> which is the basis for the <br> Esoteric Programming <br> puzzle. | O15:T20 |
| Black and white <br> numbers |  | The black and white numbers <br> are a form of Run Length <br> Encoding. Tokuhiro <br> Tsukiyama holds the <br> fundamental patents for run <br> length encoding. | C3:H8 |
| Page numbers |  | Page Numbers use <br> Cistercian numerals. <br> Cistercians are also known <br> as Bernardines after St <br> Bernard, who was influential <br> in the founding of the order. | O3:T8 |
| Word search cat <br> names |  | The cat names are from TS <br> Elliot - first name Thomas. | C15:H20 |

For each data matrix, we take the corresponding $6 \times 6$ Battleship region from the data matrix, giving us $46 \times 6$ grids. We arrange these $6 \times 6$ grids next to each other in the same layout as the battleship regions:

| Thomas | Louis |
| :--- | :--- |
| Tokuhiro | Bernard |

Then we get this $12 \times 12$ data matrix:


This data matrix decodes to 0s2kd. This data matrix does not contain any errors.

The Rosa Tech logo (a crimson hexagon - a fabled part of the library of babel containing illustrated magical books) contains the hexagon code of 3254 characters, with the first 5 characters missing. If we use $\mathbf{0} \mathbf{s} \mathbf{2 k d}$ as the first 5 characters, and we use the wall, shelf, volume and page numbers above, we arrive at a page containing the text:
nowfollowboundarynorthtobuckellsmetalmemorialandlocatebonustreasureincreviceofiv ycoveredtreeonothersideofpath

With spaces inserted, this gives an instruction:

Now follow boundary north to buckells metal memorial and locate bonus treasure in crevice of ivy covered tree on other side of path

The location being referenced here is located very close to the foot bridge where the ditch that defines Buckell's boundary meets the towpath. There is a metal boundary marker here. Very close by is an ivy covered tree as described. This map shows the footbridge location:


Found here is the Borges bonus treasure which we virtually found. Here's the tree with the ivy:


## Website Updates

During the hunt numerous helpful clues were provided via website updates. Here were the ones we spotted.

## Crossword Errata

"regular readers will know that we have been the world's leading manufacturer of crosswords since 1862"

The year that Lewis Carroll took Alice for a picnic at Godstow was 1862, on July 4th.

## ATH 2022 Poem - Sourpuss and the Raconteur

"The team here are off sledding (they can get up to some record-breaking speeds!) before the storms forecast for the weekend wash away all of the snow."

We think that sledding is a reference to the land speed record (used in the 'Which is greater' puzzle) being held by the rocket sled "Super Roadrunner". The reference to storms is a hint that in 'Quick Reviews' each line maps to a storm / hurricane.
"The horror! The horror!" is a quote from "Heart of Darkness".
"The Sourpuss and the Raconteur" is a reference to the Lewis Carroll poem "The Walrus and the Carpenter". The poem tells the story of the journey to the main treasure, starting at St Frideswide's Church, proceeding up Binsey lane then then past the Perch tavern to Godstow. This is one of the hinted routes to the main treasure.
"But be fixed for an eternity, Like carved Venetian stones" Is a reference to the boundary stones, as well as the Borges Labyrinth in Venice.
"My words are somewhat softer Cut perhaps in wood?" is a reference to the Alice door at St Frideswides.
"Stones or wood? It matters not!" Either route to the treasure (from St Frideswides, or via the Buckles boundary stones) is fine to take.
"Standing by this fence" We think this is a reference to the Buckells boundary, and walking from it 29 metres to get to the bridge.
"Of witches, cats, and mayhem..." Referencing cats and witchcraft. The main themes of the hunt.
"Oh god l'd love a gin..." along with the beer reference, we think this is referring to large quantities of alcohol consumed during the Buckells perambulation.
"I know an inn quite close to here" We think this a reference to both the Perch tavern on the Binsey Lane route, as well as the Trout located near Godstow abbey.
"Then let us take this feline path!" A reference to Binsey Lane, the feline path from the Catscan puzzle.
"We'll continue round the bend" Various bends on the way from the Perch to Godstow.

## Rosa Tech and Which is Greater Errata

"Always read the small print" is a hint to spot the small text in the red hexagon inside the Rosa Tech puzzle.
"telexed" a hint about using ITA2 to decode the punched tape.

## Squirrel Warning

The image of the squirrel was taken from Binsey Lane (near the southern Cat in Road sign). It has the GPS location embedded which we have confirmed through a physical visit.

GPS Position

- 51.754356 degrees N, 1.279742 degrees W

Date of Creation

- 2022:12:19 14:23:04


Original

## Christmas Cards and Intern Alex:

"Intern Alex went missing a few days ago" Intern Alex who covers Quick Reviews is Intern Alex "Hurricane" Higgins. A hint that each line in the puzzle maps to a hurricane.
"small pile of acorns" is a mini thematic reference to acorn computers, makers of the BBC Micro.
"Alex failed to see the tree for the wood, and that ended in catastrophe." A hint for the game, to look at the branches of the dead tree for the route through the coppice.
"Call now for latest games" Another reminder to actually call the phone number!
The telephone number on the card is the same one as the solution to the "which is greater" puzzle but with an additional digit visible. This actually confused us a lot, as we had two wrong answers which together gave us the same final digit, which this seemed to confirm!
"Sorry if the postal strikes mean this has arrived late." This was posted on the 26th i.e. late for Christmas. We weren't able to read in anything more than this into the clue.
"Squirrel post card" Another DALL-E image (similar to the front cover of Computering magazine).

The rhyming couplet is an example of "Memoria Technica", Lewis Carroll's cipher for encoding dates (or numbers). Interpreted as a date the couplet translates to 1302. As a number, the final part of the second line can be mapped to 00302, which converts to TREASURE in the secret decoder. This is hinted by "advises you to remember", which is a reference to Memoria Technica and "Charlie D" which is a reference to Charles Dodgson aka Lewis Carroll.

We think the three cats are "real" cats owned by the three members of DaphneHQ. We recognise the middle one from some of DaphneHQ's tweets.

## New Year's Day Hints

"St Daphne" is a reference to St Frideswide and her journey up the Thames to escape unwanted amorous attention. The picture is of the 'Alice Door', carved by Alice Liddell and illustrating St Frideswide. The Alice door is at St Frideswide's church, and is one of the locations marked on the "CATSCAN" map. 727 AD references the year that St Frideswide died.
"After our intern Franklin's recent hospital stay, new recruits Antoni and Betty will be helping out with game reviews in the new year." This is a hint for Quick Reviews. Franklin is the final named storm in Feb 2022, while Antoni and Betty are the first two candidate names for the next storm season. This change in year is hinted at by the "new year" reference, and "game reviews" is a clue to the puzzle this ties to.
"Glass Inside" is a hint for Edith's as well as the BCS and RosaTech puzzles. Like Ediths, it maps to a witchy item in the Pitt Rivers Museum (In this case a "witch bottle"). The price £20.23 is a hint that the prices are dates combined with the reference to a "new season". "Instruction book" and "catalog description" is a guide on how to solve Edith's puzzle i.e. to reference a specific numbered word from the description.
"Typesetting Erratum" - despite being naturally suspicious of DaphneHQ, we decided to take this erratum at face value and promptly ignored any hidden white text e.g. the "little" near the Dr Boris puzzle, lower case letters (such as near the secret decoder title or RosATech) or other typos. If these turn out retrospectively to have been hints this seems somewhat unfair of the setters.

## Our hunting tales

This was our first time taking part in the ATH, and I don't think any of us quite expected what an all-encompassing experience it would be. In the end we were able find three treasures (main treasure, borges bonus and the game treasure) ahead of the deadline and we think we solved *nearly* all the puzzles.

We completed the CATastrophe demo and had managed to find the link to the Godstow witch and that the setters were Oxford-based ahead of the full hunt being published. However, it took us a while to be confident to make the trip to explore further. We made our first trip on the 22nd of December. This was mostly to check out the Buckell's boundary stone perambulation route and Godstow abbey. However, the day prior to the trip we were distracted by the 'Squirrel Hunting' update, and had quickly worked out that the photo had GPS coordinates embedded!

The co-ords pointed to Binsey lane, which hadn't previously been on our radar. We managed to find the location that the squirrel photo was taken from and also the 'Cat in Road' signs along Binsey Lane.

Chris, Tristan, Farida and assistant treasure hunters Eva and Astrid taking a casual walk along Binsey Road for some squirrel spotting


We excitedly searched around the edge of Binsey Lane for the treasure but didn't find anything. We did see a couple of mysterious hints though - Suspicious numbers on trees which clearly fit the format of the secret decoder!


However, while we were clearly onto something we weren't sure how to interpret the cryptic message: "BENCHMARK ON PACES MORSE WITCH BUILDING".

Nevermind, a bit further up the road we also saw a definite clue! Catscan had been leading us here the entire time! $\cdot:$ Sadly we weren't able to interpret this one either. However, we did have a nice chat with the owners of the farm.

## Another important clue



Afterwards we went for a nice walk up the Godstow abbey, unknowingly passing extremely close to both the main and game treasure locations. We had lunch in the Trout and then spent the afternoon visiting various thematic locations including the Treacle Well, St Frideswides church and the Pitt Rivers museum ahead of the long drive home.

Farida and assistant Astrid, posing in front of the Trout Boundary stone


Our next trip to Oxford was on the 2nd of January. By this point we had identified the JingJing stone and had the instructions BY BRIDGE UNDER ASH, so had a pretty good idea where to look.

Stopping to pose in front of the Godstow car park Boundary stone


Despite this it took us a good five minutes to locate the stone! (We didn't have the CONCEALED AMIDST RUBBLE or LOOK INSIDE STONE instructions at this point). We quickly pulled out our paper slip (4th!). We were very happy with that.

The dramatic moment of puzzle finding. Chris forgets to smile in his excitement.


We packed up and hurried away before anyone else could see us. From the safety of the ruins we could see someone who looked extremely treasure-huntery walking the boundary route:

## An other ATHer?



We didn't want to give ourselves away, but we would love to know who this is and which team they are part of!

We then headed off for lunch at the Perch to discover more about Borges and the Library of Babel before the long drive back to Cambridge. That evening we finally solved CATastrophe,
only to discover yet another treasure had been just metres away from where we had been standing in Godstow earlier. Sadly it would be another week, until we were able to return to Oxford physically to search under the fallen tree.

We returned to Oxford for the third time on Sunday 8th January. We'd also been holding off in case our hunt for the crimson hexagon revealed a new real world location to search. However, despite a fair amount of progress we were still deep in puzzles, with Tom successfully locating various college scarfs during the car journey down to reveal a new message.

On arrival, we parked directly at the Trout and rushed over to Godstow ruins. It took a bit of searching but we quickly located another hollow stone under the tree and opened it to reveal "Number 8". Sadly no ‘Cat As Trophy’ for us.

After finding the puzzle prize we walked back to the Ash Tree to see another team approaching it in the distance. We gave them some space to find the prize before saying hello when they returned. They were "Buridan's ATH" and had just got the 6th place ticket.

After Godstow we did a bit more puzzle solving in the White Hart before driving down to Binsey Lane for another look at some cats. As we walked up the road, we encountered Buridan's ATH once more coming from the other direction. We agreed to catch up properly post hunt in the pub. It wasn't clear to us at the time, but they had clearly been following the Feline path route, whereas we had discovered the Buckell's route first.

Tom finds the Catastrophe stone:



Sadly this was our last chance to visit Oxford. We managed to locate the right page in the Library of Babel during the final week of the hunt but knowing that we couldn't make it back in person we regretfully submitted a virtual find for the Borges Bonus Prize.

All in all, we've had a great time in our inaugural PablosATH, and it's going to be difficult to go back to not treating every piece of information we encounter with suspicion. A definitely high point was finally getting enough Quiz colleges to decode the answer after weeks of grinding away at the questions, which suddenly unlocked many previously mysterious puzzles. On the other hand we got very stuck on 'Which is greater'. We had two wrong answers that coincidentally gave us a phone number which matched the final digit on Intern Alex's business card. We'd identified all the 'bitwise nearby' phone numbers but after phoning six wrong numbers had grown disheartened. Returning to the problem two weeks later, the seventh number took us straight through to DaphneHQ. Oh well.

As a final word, we'd like to say a big thank you to DapheHQ (Seb, Dave and Paul). It's clear just how much effort has gone into this, and we are looking forward to catching up with you and the other teams post-hunt in the pub!

All the best,

Imitation Gamers (Chris, Tom, Tristan and Farida)

