MYSTERY HUNT 1984 OFISHAL ANSWERS

Part 1

A) This is the pinout diagram for a 74S182 chip. Even if you aren't a hot digital engineer, all that's involved is a search of Section 5 of the TTL Data Book, which isn't very long, and has just pinouts for all of the chips.

B) The penthouse of building 12 is visible from the outside, the trick is how to get to the room. Go into building 12 from the infinite corridor, and go left at the T in the hallway (where the red maps are), then make an immediate right through the door into the skinny hallway. The first left then leads to another door, behind which is a stairway up. Go right at the top of the stairs, and about halfway into the room, there's a steep metal staircase on the right. 12-347 is the room on the left at the top of the stairs, and the extinguisher is numbered 753210.

C) The split isn't as standard as I thought. According to the Mr. Boston Bar Guide, a pony is 1 ounce, and a split is 6 ounces.

D) On the album "Surrealistic Pillow", (originally released as RCA AFL1-3766), the first song on side 2 is "3/5 of a Mile in Ten Seconds". This is equivalent to 216 mph.

E) Some people have the hardest time when it comes to counting. 119.

F) From "The Hitchhiker's Guide to the Galaxy" (or maybe the sequel, I never read it), the Answer to Life, the Universe, and Everything is 42. Yes, there are 12 eggs in a dozen. 42 + 12 = 54.

G) On page 62, Discover mentions the work of (former) MIT grad student Brad Shaefer (sic). He used to run the Mystery Hunt. 62 upside-down is 29.

H) These are views of MIT buildings traced from the map available in the Information Office. The prefix letters cancel when you subtract (sort of), so (W84 - W8) + (E52 - E19) + (W31 - W74) = 76 + 33 + -43 = 66.

J) Enfield, MA, South Dana, MA, and a couple of other towns were flooded out when Windsor Dam was built to form Quabbin Reservoir, (the water supply for Boston), I think sometime around the '30's or so. The inhabitants were relocated, but the towns are still there (underwater), with population 0.

K) Radiolarians are little microscopic, roughly spherical, little things that I guess live boring little lives somewhere. Their exoskeletons are a network of little polygons, mostly hexagons, but with some pentagons (and occasionally other polygons). A few times in history, people claimed to have found specimens covered with hexagons only, but they were obviously wrong. It isn't topologically possible to cover a sphere with hexagons. Note that there are only 5 Platonic solids, and none of them is made of hexagons. 0.

L) Beats me. Nobody keeps stats on that sort of stuff. Of course, it doesn't matter, because L gets multiplied by 0 in the equation for x. Not even Simson knows. Gee.

M) My good friend Kelly Miller tells me that the book "Crystal Data", a publication from the National Bureau of Standards, lists this monoclinic species as having an a/b ratio of 1.000.

x) Well it equals

$$\frac{(182)(3210)(6 + \sqrt[3]{216}) - [(119)(54^2 + 29) + 66]}{(0 + 0)(L) + 1}$$

which comes to 6660119. You might try dialing this on a phone, in which case you'll hear the high-pitched whistle of a 300-baud computer modem. This is connected to Clive Bolton's Franklin Ace (hence the name Boltix). If you dial it up from a terminal and hit a couple of <CR>'s, it will print out the message, which is listed on an attached sheet.

But what does it mean? Well, these are the names of streets which were built in the short time between when Cambridge was built up of landfill, and when MIT bought the property and moved over from Boston. These streets are essentially gone today, except for a little piece of Wellesley St. which runs from Mass Ave. to the Student Center loading dock (and is actually listed on some modern maps). Claflin is tougher. There exists a blueprint (which the Planning Office apparently has a copy of) from February 12, 1914, which lists all of the streets where the 'Tute is now. The intersection of Wellesley and Claflin is now occupied by the NW corner of Building 12. Following the directions gets you to room 2-327, then to 5-324, across from which are two very long greek looking names on a door. Proceeding to the right, it would not be prudent to cross the railing and plunge to your death in Lobby 7. Paul Gray's office is on the second floor, so you go down a floor, and look under the nearest part of the Inaugural display (a ductape "X" is sticking out a little bit), and if you move the display, it is labeled as part of the Mystery Hunt.
On to Part 2!

Part 2

1) This is a simple substitution cipher, alright, but the clear text is in Spanish, and the alphabetic translation is, of course, done on the Spanish alphabet, which has no k or w, but does have four other letters: ch, ll, n, and rr (pronounced "chay","ayyay", "enyay", and "erray". They may look like two letters to a native speaker of English, but to a Spaniard, each is one letter.) So, using the following correspondence:

a	b	c	ch	d	e	f	g	h	i	j	l	ll	m	n	ñ	o	p	q	r	rr	s	t	u	v	x	y	z	
i	rr	q	o	n	ch	u	d	l	h	r	y	f	e	p	x	s	ll	g	t	b	j	a	z	m	ñ	v	c	cipher
																												clear

the message decrypts to the following (with punctuation added):

Buenos dias, amigos. Esto no es dificil, pero es importante saber que no es en ingles. Es interesante que el alfabeto espanol y el alfabeto ingles no son la misma cosa. La palabra que ustedes quieren es <<marcacion>>.

A rough translation is as follows:

Good Day, friends. This is not difficult, but it is important to know that it is not in english. It is interesting that the spanish alphabet and the english alphabet are not the same thing. The word that you want is "bearing".

2) There is an untitled sculpture by Robert Engman hanging from a cable in the middle of Barker library. Measuring the cable can be tricky, but an engineer can find lots of ways. Some ideas:
Find a scale drawing of the library and measure it.
Count cinder blocks in the stairway and add the radius of the dome, which can be measured on the floor, to find the ceiling height.
Use a rangefinder (as in photograhic) to find the ceiling height.
Hack a Polaroid sonar camera (see above).
Get a protractor and triangulate.
Send a helium balloon to the ceiling and measure the string.
Throw a barometer at the ceiling and time how long it takes to come back down.
or, the method that I used that nobody else seems to have thought of: could you ask for a better pendulum?
(Freshmen be ashamed!)
The result is about 18 meters.

3) These names are on the lists of the deceased on the wall in Lobby 10. The numbers tell which war to look at. The first set is middle names from the top of the second column, the WWII ones are first names from the middle of the seventh column. If you fill in the adjacent names, you get:

I	II
MARTIN	MALCOLM
SEGUIN	JAMES
ROBERT	JULIUS
WOODWORTH	ELBERT
EASTMAN	HENRY

Which in both cases spells the word "true". (Actually, it works out a lot better on the wall, because the spacing of the letters on this printer isn't quite the same.)

4) This is a famous Greek saying which originates from a speech by Pericles. Any native of Greece would know it. The easiest way to get this is to go to a Greek restaurant in Central Square (i.e. Campus House of Pizza, Stefani House of Pizza, Vouros' Zaxaroplasteion, etc.) and ask somebody behind the counter. The full quote is:

«Ἀνδρῶν ἐπιφανῶν πάσα γῆ τάφος»

which means something like "To a famous man, any country is a tomb", that is, to a famous man (soldier, in this context), any country is as much home as any other, and if he dies, the earth will accept him welcomly anywhere. Or something like that.
So the missing letter is (phi).

5) Some people just get this one right off, the others never do.
Hex 3D is "=" (equals sign) in ascii.

6) Well, yeah, so it's on Mars. And it isn't even a very important feature on Mars. My good friend Dan Flagg tells me that Norton's Star Atlas lists the latitude at -23 degrees. And for Martian coordinates, longitude is listed before latitude.

7) I guess this is just the hardest clue that anybody has seen in years. I took the last 3 definitions of this word from the big dictionary in the Humanities Library. The word is "range".

8) If you go to the SCC 24-hour Coffeehouse, you'll find that day-old donuts (such as Bavarian Cream) cost 20 cents each, a Skor candy bar will run you 30 cents, a glass of apricot nectar costs 45 cents, a bagel is 20 cents, butter is another nickel, and a little bitty Charleston Chew is just five cents. So if you are a student, and don't have to pay tax, the total for this order will be three seventy-five.

9) Niagara is an ugly, rusty sculpture made of maraging steel that was described by Prof. Jerry Lettvin in a review for The Tech as resembling "droppings from a flock of 747's". It wreaks its presence on the Institute in Compton Court (near the Alumni Pool). I put a piece of ductape on it (on the "ceiling"), with the message: "Arabian Poles".

So the final message is :

Bearing 18 true, Phi = -23, range 3.75 Arabian poles

What does this mean? Well, from the aforementioned "X", this describes the position of the coin, sort of in spherical coordinates. The first three words tell you the compass direction: 18 degrees. Don't forget to correct for magnetic declination (add 15 degrees in Cambridge). Great. "Phi" is the customary designation for elevation angle in spherical coordinates, so you need to look down at a 23 degree angle from the horizontal. The distance to the coin is given in Arabian poles, which is a unit of length used in the Bible. Conveniently, there is a conversion table on page 14 of the IAP '84 Final Guide. 3.75 Arabian poles is about 55 feet. This puts the coin around the right hand side of the IAP bulletin board (visible across the lobby). In fact, it was on top of the rightmost upright support pole, underneath a piece of black paper (so that it wouldn't be immediately obvious when viewed from above).

The coin was a Republique Francaise 10 centimes piece.
Congratulations to Next House Guys (Rhonda, Greg, Brad, Bill, Mike)
for finding the coin first, at 6:30 PM Wednesday, and also to:
Forrest and the PBE team,
Dennis and Jim from Next House,
Don, Avrim, and friends from Senior House,
and the team from Spanish House
for amazingly valiant effort
as well as all who participated.
I hope you all had as much fun as I did, but that probably is impossible, because I had so much fun!!!

Jean-Joseph Coté

Interesting note: This was the longest Mystery Hunt yet (57 hours 25 minutes). If you're interested in running one next year (I'm supposed to be an alumnus by then), I can give you some useful hints on the running of such a thing.

Some anecdotes:

PBE called the National Bureau of Standards in Washington to find out what to measure the thickness of glass with. NBS could only come up with "micrometer".

On the first day, an unidentified guy named Louie was trying to work backwards, starting from the last couple of clues and trying to make a lucky guess. He got 255 for the Coffeehouse price, and had the kitchen workers searching room 255 in Lobdell for the word Niagara on dishwashing equipment.

Somebody on the Senior House team suspected that the cipher was song lyrics with a lot of "oo-ahs" in it.

Dennis and Jim at one point came up with "DonalD Duck" as a 3D character.

The Next House guys took me by surprise when they walked into my office Tuesday night with the Boltix printout. The last time I had heard from them, they were still missing a lot of clues on page 1.

A bigger surprise came from Spanish House, who I had not even heard from at all until they called me Wednesday morning. At that point they were in Lobby 7 looking for the X.

Some people have the hardest time counting. The answer that was most frequently wrong was the number of ridges on a quarter. Senior House never committed themselves to a number until after they had called Boltix.

Protei Regio was suspected of being everything from an Egyptian king to the Latin name for Greenwich.

Dennis and Jim were looking for the source of the quote used in the Coffeehouse clue for a while.

Simson L. Garfinkel tells me that 8 people called him asking about the library book. He wants to know who started the rumor.

6660119, the numerator in part 1, is a prime, so I suppose it was possible to infer that the denominator had to be 1.

Just before they got the phone number, PBE tried varying the numbers that they had that they weren't sure of. They had the wrong value for the a/b ratio at that point, and that was one of the ones they suspected. They also weren't sure about the number of eggs in a dozen.

The Senior House people got the population of Enfield by dialing 411 and then getting referred from number to number until they got hold of somebody who had heard of South Dana.

For about a week before the hunt started, there were pennies on top of the bulletin board poles, as I was experimenting to see how visible they were. When the Mystery Hunt started, however, the coin wasn't there, because I had just gotten it that morning, and hadn't had a chance to put it there. At 10 AM my roommate Mike (who is tall) showed up, and I gave him the coin, which he just plunked on top of the pole in Lobby 7 in broad daylight.