The Three-Day Puzzle Hunt 1990 Team Information

Please enter the information below for your team and then give this back. Team name: Phone number(s): Team members:

The Three-Day Puzzle Hunt 1990

The object of this hunt is to find an unusual coin that has been hidden somewhere on campus. Whoever gets it first will be declared the winner. Call us as soon as you think you are near to getting the coin; we'd like to share your moment of triumph.

This hunt is for fun only. If you find yourself not having fun, stop whatever it is you're doing, call us and we'll see what we can do. The only prize for winning (other than having to run one of these things next year), is the satisfaction and enjoyment of the hunt, so please don't do anything that would spoil the fun for other hunters.

You can reach us at 864-7940. Check in regularly to let us know how you're doing so that we can prepare additional hints that will be fair and useful to all hunters. If you suspect something is wrong with the hunt, please let us know immediately.

The latest status of the hunt (hints, corrections, announcements, if someone's found the coin, etc.) will be kept on an answering machine at 876-9463. Call it frequently to check what's going on. When you call, press "#" to interrupt the intro message. Then press the <u>password</u>, 222220.

The majority of the hunt is doable at any time of the day or night. You can certainly get the coin at any time. We (and we hope Security) will excuse a few minor illegalities. After all, college should be a time for expanding your horizons.

Let the hunt begin!

Best wishes,

The Spanish Inquisition

1800 777 9463

Some Puzzles

Ignore all punctuation when entering words and numbers during this hunt. Always include leading zeros and the building number in room-numbers. For example, enter "In-A-Gadda-Da-Vida!" as "INAGADDADAVIDA" and enter 7-003 as "7003".

- (Q1) Last two digits of the year of the penny under the rug in Lobby 7 directly under the dome.
 - (Q2) A man works in Enfield, Massachusetts. What kind of suit does he put on every day
 - (Q3) Last word of the TV phrase associated with Vinko Bogataj (_____).
 - 71 (Q4) Type of plane pictured on separate sheet (XX-_ _).
 - [3(Q5)] Number of olives on the olive branch held by the eagle on a one-dollar bill.
 - 4 (Q6) You are given the following information for the circuit diagram pictured on a separate sheet:

$$R_A = 76 \text{ k}\Omega / \text{O}^3$$

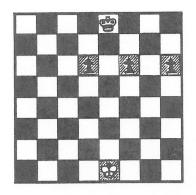
$$R_B = ([A]^*[G]) \text{ k}\Omega$$

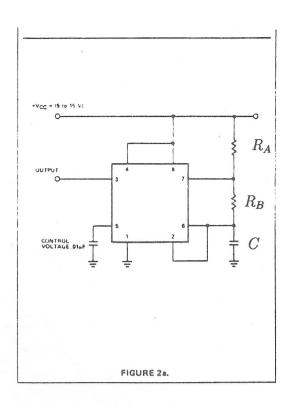
$$C = 25 \mu f / \text{O}^3$$

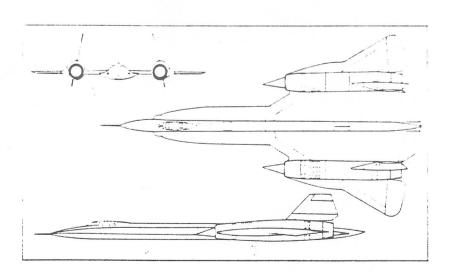
The chip is a ([J2]+59). What is the duty cycle?

- (Q7) Guide acrostic (TICMET TO MECCA).
- (Q8) Guide index (OW STATUMGIME).
- (Q9) The chessboard pictured on a separate sheet depicts a position from late in a chess game. Amazingly, neither White nor Black has ever made a move in which a piece started on a square of one color and ended up on a square of the other color. How was the Black Queen Knight Pawn captured?

EN PASSANT







18.PZI Final Exam

This is a closed book exam; calculators are not permitted. You have one hour. This counts for 50% of your grade.

Actually, here are the rules: if the answer to a problem is a number, write it as a number (write "17," not "seventeen"). It may be necessary to use decimal points occasionally. And if the answer to a problem is a word, write it as a word (write "defenestrate," not "17"). The book Mathematics and Humor by John Allen Paulos is the recommended text, although it probably won't be much help in solving any of these.... Anyway, good luck, and have fun.

There are supposed to be two pages here.

J1	How many riffle shuffles does it take to randomize an ordinary 52-card deck of playing cards?
	This number also happens to be one fewer than the number of perfect riffle shuffles necessary
	to return the deck to the order that you started. (In case you're interested, it takes several
	thousand overhand shuffles to randomize a deck.)

496 J2 Speaking of perfection, you may know that 6 and 28 are perfect numbers. What is the next smallest one? It is not known whether there are infinitely many perfect numbers.

Bernoull' J3 What is the last name of the mathematician who discovered L'Hôpital's Rule?

J4 In 1832, this mathematician produced a work which, according to Hermann Weyl, "is perhaps the most substantial piece of writing in the whole literature of mankind." Name the not lauchy mathematician (again, last name only). For the next two questions, let $x = 1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \dots}}}}$.

20 J5 What substance is associated with x?

What name is usually given to the sequence of numbers $\{\frac{x^n-(1-x)^n}{2x-1}|n=1,2,\ldots\}$?

_____J7 Here are four true-false questions. Using the answers as binary digits (1 for true, 0 for false), translate your answers into a single number between 0 and 15. (Oh, we want it in base 10.)

• There exists a function $f: \mathbb{R} \to \mathbb{R}$, so that f is continuous at every real number x, and so that f is not differentiable at any real x.

• The equation $x^n + y^n = z^n$ has no non-trivial integer solutions for $n \ge 2$.

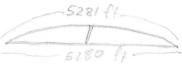
• It is impossible to construct a regular 17-sided polygon with a straight-edge and compass.

• Assume that the earth is a perfect sphere. Given any point on the surface of the earth, its antipode is its image upon reflection through the center of the earth (so if the sphere is given by $x^2 + y^2 + z^2 = r^2$, then the antipode of (x, y, z) is (-x, -y, -z). True or false: there is a point on the surface of the earth so that it and its antipode are at identical temperatures and identical barometric pressures.

2345 J8 Write down two numbers which, combined, use the digits $1, 2, \ldots, 9$ exactly once each, and whose quotient is $\frac{4}{5}$. (For example, if you try to get quotient $\frac{1}{2}$, one pair of numbers is 9267 and 18534.) What is the denominator?

9976 9876

Word Problems



- J9 Once upon a time, there was a widget factory (as there often are in math problems). There was also a widget store, which happened to be exactly 1 mile in a straight line from the factory. The widgeteers wanted to ship their widgets by rail, so they ordered a piece of railroad track exactly 1 mile long. Unfortunately, due to a bureaucratic mixup, they received a track which was 1 foot too long; the widgeteers, being widgeteers and not mathematicians, decided to use it anyway: the track was fairly flexible, so they bent it into an arc of a circle, and then put it in place. Not so needless to say, the widgeteers were a bit surprised with the results. To the nearest half-foot, how far off the ground was the track halfway between the factory and the store? (You may as well assume that the earth is flat for this one, by the way.)
- J10 One of the recent missions of the Enterprise was to escort a diplomatic envoy from the Planet of Syndicated Television Shows to a Federation meeting at Starbase II; the envoy happened to consist of Sabrina, Kelly, and Jill from Charlie's Angels. After the meeting, Kirk, Spock, McCoy, and their three guests were relaxing in the rec room having a few cold ones, discussing their favorite hobbies, and getting a bit sloshed. Eventually they paired off into couples (let's call them Couple A, Couple B, and Couple C) and had romantic evenings, the different couples making use of different facilities on board (for example, one couple went hot-tubbing); afterwards, each pair retired for the night to one of the pair's cabins (each of the Angels had her own cabin, as did each of the crew members). By talking to friends, you have been able to piece together the following information:
 - The origami enthusiast didn't go to the movies.
 - Kirk, the horseback rider, was not in Couple B.
 - Sabrina and McCoy ate lunch with the person who likes to cook.
 - One of Sabrina, McCoy, and Spock enjoys skinny-dipping.
 - Spock didn't go to the movies.
 - McCoy's cabin is down the corridor from where the couple slept whose members' hobbies are skinny-dipping and watching football.
 - Kelly didn't go out dancing.

Kelly is not in C

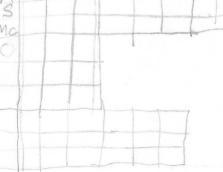
• The next morning, they made it to breakfast in this order: first McCoy, then Jill, the target shooter, one of Couple B, and finally both members of Couple C.

You should really find out what each couple did in the evening, what each person's hobby is, and who slept with whom, but all we want to know is, who did Kirk spend his evening with?

(Don't assume the earth is flat for this one.)







PICTURES

I stood at my office window, glaring out at the January snow. It had been a molasses day and I was beginning to go stir crazy. Hell, the whole month had been dead slow, and the reward money from my most recent case was already long gone. I had been living off the return deposits from my Pepsi empties, but the Stop & Shop manager had threatened violence last time I brought the cases in.

A pounding on the door shattered my thoughts into tiny shards. "Come in!" I growled,

getting seated behind my desk. A young man with fiery red hair burst in.

"You've got to find him!" he cried.

"Find who?"

"The Jolly Green Giant."

So that was it. I'd heard about the disappearance in the papers, of course, but it hadn't meant much to me. I like my corn on the cob, not in the can. But there's no percentage in pushing your opinions on others, especially when they're waving enough green to keep you in cola for a month.

"What's the bird's-eye lowdown on this caper, Red?" I asked, popping back the tab on a

warm one.

"I think he's been kidnapped. I received these pictures in the mail just this morning.

There wasn't a ransom note, but I'm sure that one will come."

I scanned the stuff he handed me. I thought I recognized a few places, but memory is no substitute for legwork. "I'll take the case. I get two hundred a day, plus expenses. No promises, but I think I can help you."

He pealed off six presidents. "You've got three days, shamus. By that time, I want to see

Mr. Giant in the flesh. So to speak."

"I'll do what I can."

* * *

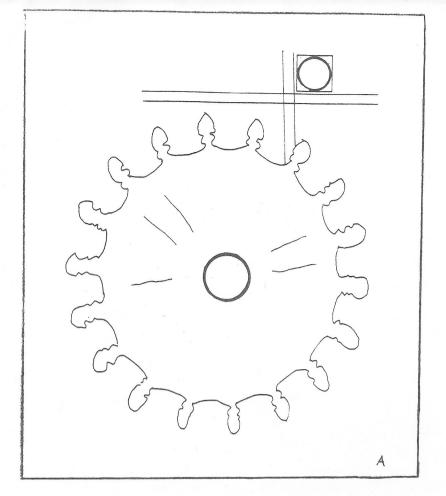
- A) I started with the one that I had the brightest idea about. I now knew what was at the end of Their Lives $[_41 XXXX]$, but I was still in the dark about Jolly's. Maybe I was too late. Maybe he already knew. Maybe it was time for another Pepsi and a new angle.
- B) Call it international communication 101 or the bird. Either way, they deserved it. I headed in to Mrs. Kendall T.'s. As usual, I had to wait. If Jolly didn't know what was at the end of his life, I wasn't going to find out there. I left. So far this case was at a Dead End. I was going to have to turn things upside down before I got anywhere. It seemed like it was time for a poll [CEL _ /_]. How many preoperational transexuals of the Catholic clergy have spent yom Kippur with Iranian Islamic lesbians? Some questions, you know the answer before you ask.
- C) Was it some kind of joke? Sick, they were. Twisted, yes. But subtle just wasn't in this band of thieves' vernacular. Quickly I reasoned that this wasn't Jolly's epitaph, but rather the date of the fiends' next delivery of stolen joules [19]!
- D) Still, I had some clues. I'd heard rumors that Jolly had been seen in the vicinity of Goodale. No contesting that. I knew I was close when the smell hit me. I gazed in horror at the hefty hunk of steaming junk in building [E__].
- (E) Shaken, I explored another possibility. Perhaps they'd tried to smuggle him under ground. No, he wouldn't fit [8'_"].

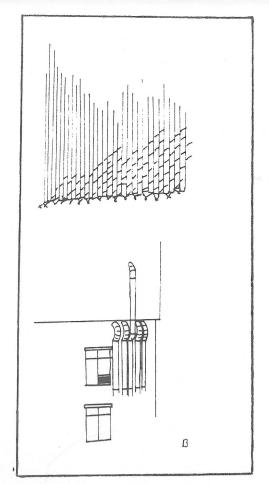
- F) I was running low on ideas. It was time to visit Professor Conehead. I'd always enjoyed his lofty classes. He was the only one I knew who put the class on the podium instead of himself. Maybe it was an attempt at self-preservation in order to get downwind of his ever-flatulating students. Today he was teaching three classes with two assistants to his right. As usual, much of his lecture was hot air. Seeing more students than usual, I called out, "Hey, Conehead, what's your size [T-__] now?" He belched some profanities and profundities and told me to jump off a roof. That Conehead what a joker!
- G) Before I blew him off entirely, Conehead gave me an idea. Maybe they canned Jolly by pushing him off a roof. That certainly would have ruined his day. It was time to investigate. I drained a Pepsi and looked around. I was just about to give up and head home when a silver glint caught my eye. On it I found a small red dot [2CFSB] of blood. The sample lacked a freshness stamp, so I knew it wasn't Jolly's. Perhaps it had come from a United Way blood drive.

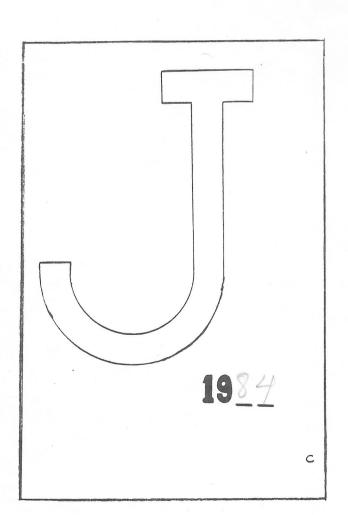
8-e17

- H) Since sniffing Jolly out hadn't worked, maybe triangulation would. But what would I use as my reference? Gazing out through the window, I got an idea. If I could just find the closest room [XX-3__] to the window, maybe there'd be a clue. There wasn't. I moved on.
- 34 I) Death. I was staring into dead faces. I've heard it said that death is just another horizon, but from where I stand it doesn't look much like Acapulco. Curse you, Red Baron! Curse your stupid war! Suddenly I was seeing stars, 22 tiny stars. I'd had enough.
- 36 J) There was only one picture left. I headed for the skylight. Once inside, I walked along the wood path. There were two obvious six-digit numbers, and I noticed that the square of their difference was (__). It's little thoughts like that that sometimes have the biggest payback. But not this time.

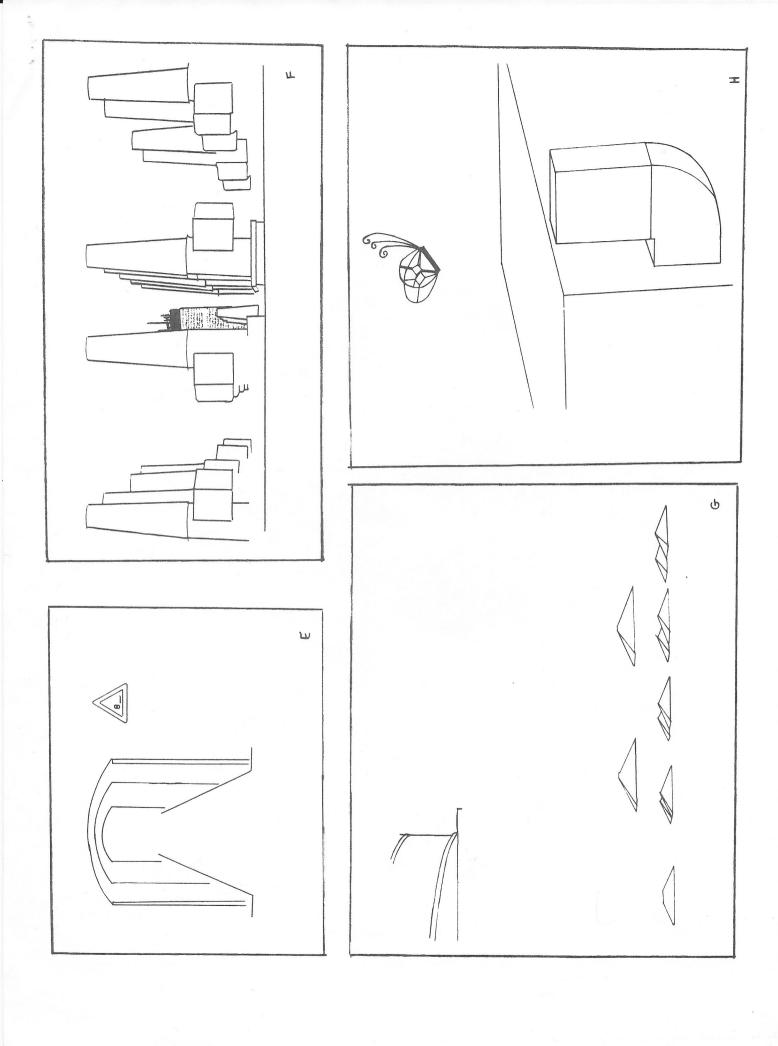
Exasperated and out of ideas, I went back to my office to review the facts. I was missing something. There had to be more to this case than I realized...

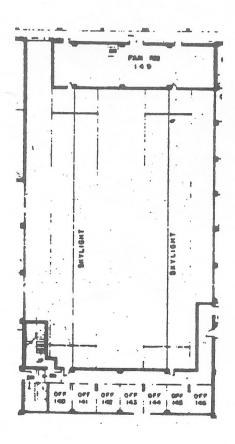


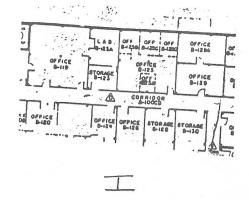












10:00 bbby 57

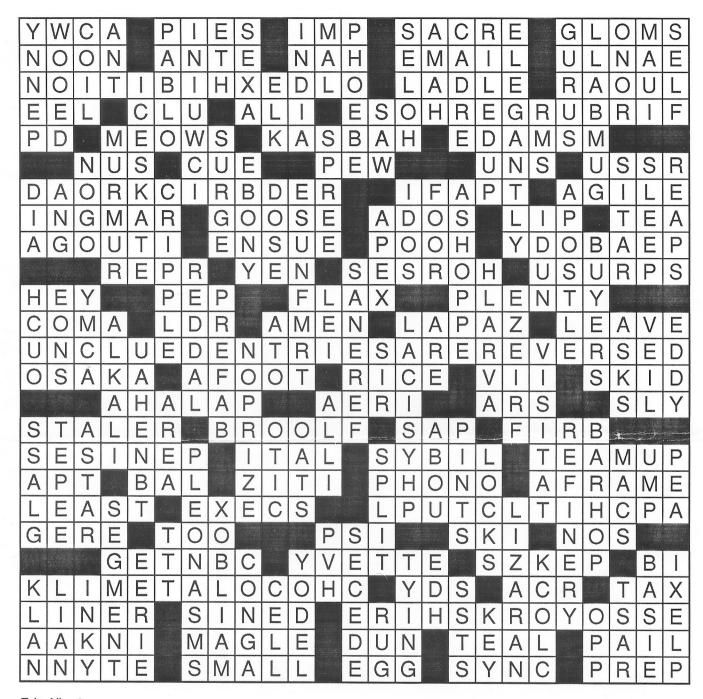
Answer Sheet

Enter answers below; don't worry if there are a few left-over letters at the end.

	9	B	L	R	N	0		-	1	A Property of Control		
NBYC-	8	J4 	A.	N	V		5	G	0	1		
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38 125 f 2 Gg	$= \zeta$ = E	Q5 + E $H \cdot Q5$	$E \cdot H$	53 o = 5 p =	= J9 + $= E \cdot B$	BV	25.3	4 72/8	36x =	= J = J1 · G	$G \cdot H$	
$\begin{cases} h \\ 0 \end{cases}$)1 – Q 1		13 q =					1. /-	= A - J $= Q1 -$		

ab cdef ghijkl mn opq rstuvw xyz«

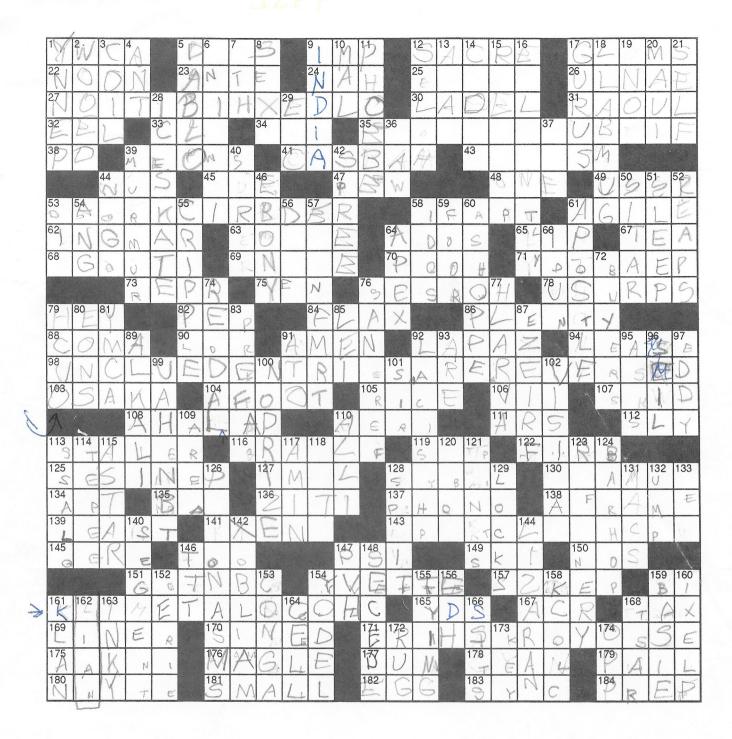
ACDGI



Eric Albert 14 Hancock Street Auburndale, MA 02166

25 x 25 209 words

CROSSWORD



esso Dikire

e_so_orka_ire

CROSSWORD

ACROSS

- 1. Women's club
- 5. What Eskimos eat?
- 9. Perverse spirit
- 12. bleu!
- 17. Snarfs
- 22. Midday
- 23. Add to the pot
- 24. Nope
- 25. Electronic communication
- 26. Arm bones
- 30. Soup implement
- 31. "Eating __
- 32. Slippery one
- 33. Language
- 34. "Rope a dope" fighter
- 38. Law enforcers: abbr.
- 39. Catty noises
- 41. Crowded quarter of Algiers: alt. sp.
- 43. Anagram of sammed?
- 44. They're Greek to me
- 45. Long rod
- 47. Church location
- 48. Young ____ (little folk) 49. Red letters?
- 58. In case it's appropriate?
- 61. Having quick grace
- 62. "Cries and Whispers" director
- 63. Place to get down from
- 64. Fusses
- 65. Sass
- 67. Oolong, for one
- 68. Nocturnal rodent
- 69. Happen as a consequence
- 70. Robin's bear
- 73. Make an additional impression: abbr.
- 78. Takes what is rightfully another's
- 79. Call to Georgie Girl
- 82. Vim
- 84. Spinning fiber
- 86. Lots
- 88. Medical thriller
- 90. Guy up front: abbr.
- 91. Prayer ending
- 92. Bolivian city
- 94. Permission

- 98. Important information
- 103. Japanese city
- 104. "The game is
- 105. Common grain
- 106. Follower of Louis?
- 107. Slip
- 108. Anagram of hapala?
- 110. Endless nest?
- 111. ____ longa, vita brevis
- 112. Foxlike
- 113. Not as fresh
- 119. Blackjack
- 122. Tree after Pine-A?
- 127. Slanty: abbr.
- 128. Woman's name
- 130. Join with
- 134. Apropos
- 135. Equipoise: abbr.
- 136. Pasta type
- 137. Sound prefix
- 138. Kind of house construction
- 139. Smallest in degree
- 141. C.E.O.s, e.g.
- 145. An American Gigolo
- 146. In addition
- 147. Greek parapsychology letter
- 149. Snowplow, etc.
- 150. Ours: sp.
- 151. Have a TV set that receives a network?
- 154. French woman's name
- 157. Anagram of zeskp?
- 159. Twice as likely to get a date?
- 165. Football gain: abbr.
- 167. Opposite of dn.
- 168. Tariff, e.g.
- 169. Ocean-going vessel
- 170. Having a trig function?
- 175. Anagram of iakan?
- 176. Anagram of gleam?
- 177. Dull grayish brown
- 178. Greenish blue
- 179. Milking need
- 180. Anagram of tenny?
- 181. Lilliputian
- 182. Ovum
- 183. Cause to agree in rate of speed
- 184. Get ready for

DOWN

2. Romanced

3. Electromagnet part

4. Fiery insect

5. Picasso

6. Anagram of cuiiiwn?

7. Old letter

8. Intercourse grade?

9. "A Passage to ____

10. Bad: pref.

11. Epithet of Artemis

13. Oriental nurse

14. Core group

15. Angered

16. Beautifully, to mathematicians

17. Wise ones

19. ____ about (roughly)

20. Hawaiian island

21. Kind of made man?

28. Walk on water (almost)

29. Fraternal member

36. Old adage

37. Project GNU leader

39. Whisper softly

40. Swell

42. Word with shopping and killing

44. Negatory

46. Black magazine

50. Instrument from 9 down

51. Snooze

52. Gets what one's sown

53. Slantwise: abbr.

54. Pinhead dancer: abbr.

55. Maim

56. Clap amount

57. Anagram of fun terms?

58. Wedding vows

60. An olde-fashioned store?

61. Mark, for example

64. Highest point

66. Anagram of undi?

72. They'll pay for it

76. What every sports team desires?

77. Between H-egg and H-pupa?

80. Thousands and thousands of years

81. Men's club

83. ____ Sprout

85. Hawaiian necklace

89. Not basic

91. From Z 93. "____ You Experienced?"

95. Sets as a price

96. What a nun takes

97. Contrary current

99. Anagram of the nabu?

100. He's ____ (homely)

101. Knight's address

102. Vacation in a location

109. Side x side, often

110. "__ want for Christmas ..."

114. Cone home

115. " Is Born"

117. Goes with Idi and Antibi

118. What lusty people feel

120. "____ ben Adhem"

121. Lager measures

123. Crude plant

124. Go from dive to dive

126. Redundancies

128. Take a powder

129. Entry inhibitors

131. Apple PCs

132. Red Sox ref

133. Princess' tormentor

140. Orange piece

144. What Ms. Minnelli did in the 10K? 146. Tease?

147. PVH

148. Leave an imperfect union

152. Strangely weird

153. Dance

154. Ululate trillingly

155. Lacing

156. Old letter

159. Famous count

161. Sheeted conehead group

163. Like octopus output

164. Prisoner's pen

166. Fast fliers

168. Autocrat

172. It comes in 4x6 and 9x12

173. A minor, e.g.

174. Not adj. or hyp.

Suddenly, things clicked into place. Jolly, the juggler, those ubiquitous Wind Hotline signs... It all fit together! I raced back to the place I'd seen the [1 down]. Now, where was that [158 down]? Ah, yes. I walked under it and entered the hall called [W1]. Mentally, I counted doors: five on the right, five on the left. I stopped at the sixth and checked whose it was. I didn't recognize the first guy, but the last name of the second [W2] rang a bell. I hadn't known he was back on the streets.

The door gave me trouble for a moment and then I was through. I passed a door or two and hung a right, then right again. There was another door, but this one was even easier than the first. I crossed the room and left through the opposite door, ignoring the poor suckers around me. They'd find out soon enough. Just in time, I saw the EXIT. I wasn't about to fall for that one again. Before I reached the sign I spun left and ducked through the door into the stairwell.

There was a door on my right, but there was no point in using it. I went up a flight. There was a room on the right. I went in only long enough to grab the name of the manufacturer off the MIXED AIR TEMP panel [W3]. I continued my climb, bearing right when necessary, until I was at the [59 down]. Before going there, I checked out the door on my left. Nope, no help there either.

I crossed, and went up a flight. I searched for the [74 down], which wasn't immediately visible. Once I found it, I used it. I spotted a staircase and counted stairs until I reached the broken one. It was number [W4], as I'd suspected. My pulse was pounding like a bongo drum so I took five to calm down and look around. Time for the [74 down] again. I used it as you'd expect and then turned right. I walked until I could walk no longer, and then stared. To my

surprise, I could see their meeting room, straight ahead!

I didn't want to go there directly, of course, but there was another way. A few minutes later, I was standing in front of the door. I counted the [12 down]. Yup, eight. I couldn't go in while they were there, so I scouted about for a [18 down]. It took a little time, but I found a whole lot of them, and not too far away either. It was time to count again, this time the contiguous [162 down] [12 down] in the [160 down] [113 down] [W5]. Hey, call me paranoid. I didn't make it this far without learning when to be careful. The scene under the [160 down] [113 down] caught my eye. High weirdness, to be sure, and the "explanation" on the wall didn't help much. Punks.

I continued on, more or less in the same direction as before. I turned right and eyeballed the pane: [143 across]. Yeah, I used to spell like that too, after I had nine pints of Pepsi in me. I went through the door. A little way down was a door labelled [27 across]. I went in and counted the [76 across] in the [87 down] [W6] in this room only. Then, just for good measure, I also counted the [125 across] [W7], not including those of the [76 across]. God, Catherine would

have thought they were great!3

There was clearly nothing more for me here. I left and headed back the way I came. I went across the lobby and down the [53 across]. As I walked, I looked out for the drop spot. It had to be that [142 down] on the left. I took down the four-digit number on it [W8]. I went to the end and turned left, then right, then right after a while. My watch feeped. Damn electronics. Give me the old days when the phones binged and watches bonged and it was Saturday all Sunday long. But the past is a foreign country now, and I was trapped in the present. It was time to meet [71 across].

I made it to his floor and went left. I was too late. He was lying under the [171 across]. I dragged his body out, a dead weight. I checked the [171 across]. Another dead weight [W9]. I rifled his pockets and found a note. It was in Japanese, and looked like the storyline of a play. It

was true, then: dead men tell Noh tales.

I struggled to translate the note. At least those years in 'Nam were good for something. I haltingly read off, "Take [W6]. Add [W7]. Go to elevator 1 of that building." What did I have to lose? Still, you take the breaks you get.

Minutes later, I was there. I unhestitatingly pressed button [W1]. When the machine stopped, I strode across the hall and through a door. One floor up, I entered a room. There, straight ahead and up on a door was a number [W10]. I knew better than to go that way, so I took a few steps and went left and down. I was in the heart of their operations now. The machines stretched on farther than I could see. I began to walk. And walk. And walk. I passed through a doorway, and still the trek continued. At last an entyrway appeared on my right, with [79 down] written over it. That's where the precious stones belonged, but there was no time for that now.

I took the right and found myself in a control room. I scanned the panels, searching, searching... and then I saw the label [W11] on Fan #F-36, under the green light. I hadn't realized their plan was so deadly. I used a nearby door to get a breath of fresh air, and noticed that Conehead's class was still in session. That buoyed my spirits, and I went back to the control room and left via the door I had originally used.

I turned right and continued through the machines. At the very end I turned left, went through the door, and passed a vat of [161 across]. I went down to the [35 across], and out the

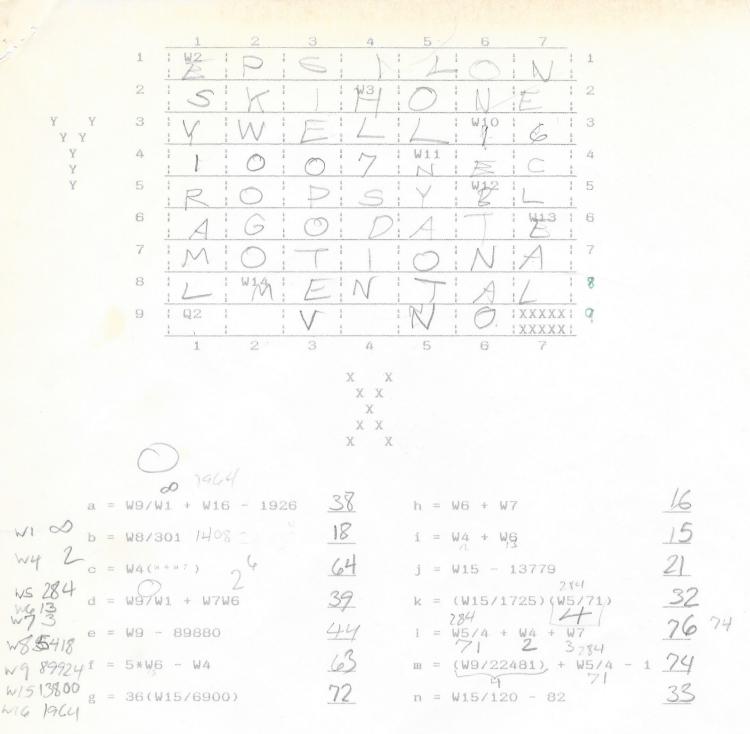
door. A right, and I was in front of an elevator. I took it to [116 across].

There I turned left, went through a door, went left, and took an immediate right. I noticed a [74 down] on my right and smiled, remembering the earlier part of my journey. After going down, I saw the files. They were in haphazard order, but I was eventually able to find 8493-21—8493-36. I noted the word [W12] after IRON Russia.

Further on, I took a left, followed by two rights.

I saw a sign that had [92 down] replaced with [W13]. A short while later I saw a similar sign that had been similarly dealt with [W14]. The artist's rendition was clever, but was nothing sacred? I took a right and gazed through the door. [W15] volts said the sign — enough juice to fry the entire Central Time Zone outside of Indiana! I split, using the stairs at my left. I went through the door, took a left, and a short while later was by the year [W16] on the wall.

^{*} Actually, I gazed through the glass window in the door at the end of the very short corridor.



ELEV. 7-1, EAR PIECE ghi jkimn